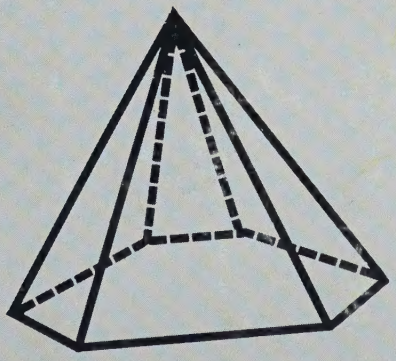
starting points in mathematics 6

Workbook

Teacher's Edition

For each solid shape, give
and the number of faces.

1. hexagonal pyramid



___ vertice
___ edges
___ faces

3. triangular prism

___ vertic

QA
135.5
S79
1982
gr.6
wkbk.
tch.ed.
c.3

CURR

EX LIBRIS
UNIVERSITATIS
ALBERTÆNSIS

tics 6
in the
ning of each

son in the workbook. The lesson titles in both books are identical for easy identification. Each of these workbook lessons contains a code line that refers to the corresponding textbook pages. These lessons provide additional practice with the topics in the textbook. Most include a helpful built-in review feature of the required skills or concepts. You may adapt this feature for diagnostic, instructional, or evaluative purposes.

The workbook also includes *Practice* lessons. Halfway through most units there is a full-page *Practice* that reviews the unit topics studied to that point. At the end of each unit there is a full-page *Practice* that reviews computational skills or solving word problems. A unit may also contain one or more half-page *Practice* lessons on word problems.

Students who are assigned work in lessons that correspond to textbook lessons should be those who have exhibited difficulty in understanding the material in the textbook or those who could profit from further practice. Any student, however, could profit from the review provided by the *Practice* lessons, whether these lessons review unit topics, provide mixed-computation exercise sets, or provide mixed-computation word problem sets.

This Teacher's Edition differs from the student's workbook in that it includes these notes and exercise answers in red.

The following illustrates the structure of a lesson that corresponds to a textbook lesson.

1 Lesson title
Matches title of corresponding textbook lesson

2 Code line
Textbook/Unit/Page

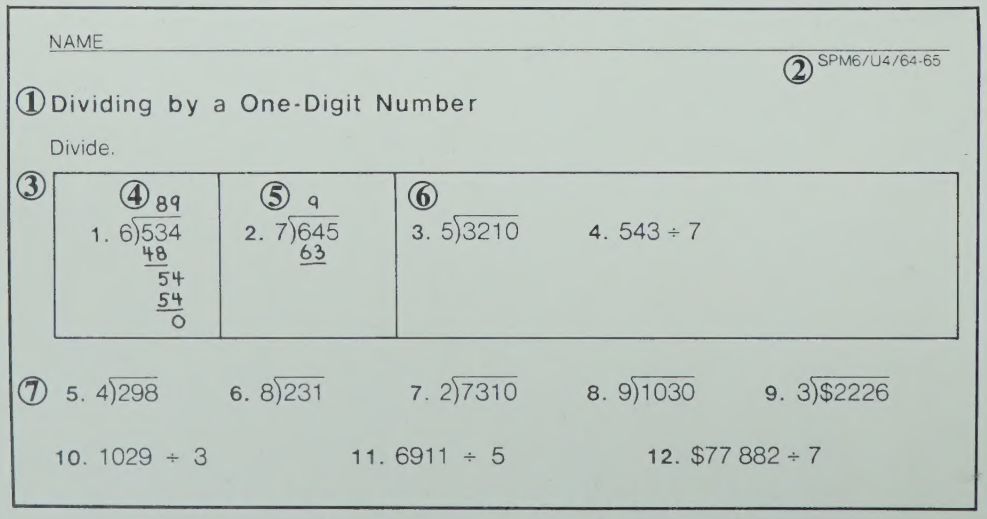
3 Diagnostic/instruction box

4 Completely-worked example

5 Partially-worked example

6 Decision exercises
Check students' understanding

7 Additional practice


NAME _____

② SPM6/U4/64-65

① Dividing by a One-Digit Number

Divide.

③

④ 89
1. 6)534
48
54
54
0

⑤ 9
2. 7)645
63

⑥
3. 5)3210
4. 543 ÷ 7

⑦ 5. 4)298 6. 8)231 7. 2)7310 8. 9)1030 9. 3)$2226

10. 1029 ÷ 3 11. 6911 ÷ 5 12. $77 882 ÷ 7

Continued on the inside of the back cover.

Workbook for

starting points in mathematics

Level 6

GINN AND COMPANY
EDUCATIONAL PUBLISHERS

Contents

Unit 1	Numeration	1
Unit 2	Addition and Subtraction	4
Unit 3	Graphing	10
Unit 4	Multiplication and Division	16
Unit 5	Decimals	26
Unit 6	Measurement	34
Unit 7	Multiplying and Dividing Decimals	42
Unit 8	Measurement	48
Unit 9	Geometry	54
Unit 10	Fractions	64
Unit 11	Operations With Fractions	70
Unit 12	Ratio	78
Unit 13	Percent	84
Unit 14	Motion Geometry	88
Unit 15	Dividing With Decimals	98
Unit 16	Integers	104
Checking Up		108

©Copyright, 1982, by Ginn and Company, a Division of Gulf & Western (Canada) Limited. All Rights Reserved. No part of the material covered by this copyright may be reproduced in any form or by any means of reproduction. Printed in Canada by The Alger Press Limited.

ISBN 0-7702-0849-5

B C D E F G • 088

UNIVERSITY LIBRARY
UNIVERSITY OF ALBERTA

NAME

SPM6/U1/4-7

Numbers to 999 999 999

What does each 3 mean?

1. 1 531 649 3 ten thousands

2. 23 146 000 3 millions

Write in expanded form.

3. 80 902 80 000 + 900 + 2

4. 2 605 000 000 000 + 60 000 + 5 000

Write in standard form.

5. nine million ninety-five thousand 9 095 000

6. 700 000 + 20 000 + 400 720 400

What does each 8 mean?

7. 16 820 594 8 hundred thousands

8. 81 612 027 8 ten millions

Write in expanded form.

9. 800 095 800 000 + 90 + 5

10. 20 067 000 20 000 000 + 60 000 + 7000

Write in standard form.

11. six million eight hundred two thousand 6 802 000

12. 4 000 000 + 60 000 + 700 4 060 700

SPM6/U1/8-9

Comparing and Ordering Numbers

Use > or < to make true statements.

1. 498 669 $>$ 496 896

2. 6 037 736 $<$ 6 073 637

3. 908 098 $<$ 908 809

List from least to greatest.

4. 47 394, 47 349, 47 397 47 349, 47 394, 47 397

5. 1 298 199, 1 289 289, 1 289 291 1 289 289, 1 289 291, 1 298 199

Use > or < to make true statements.

6. 46 535 $<$ 46 543

7. 2 067 538 $>$ 2 065 783

8. 596 374 $>$ 596 372

9. 766 969 $>$ 766 070

10. 17 345 517 $<$ 17 354 751

11. 1 460 399 $<$ 1 604 398

List from least to greatest.

12. 685 686, 684 858, 684 848 684 848, 684 858, 685 686

13. 4 350 735, 4 350 077, 4 375 037 4 350 077, 4 350 735, 4 375 037

NAME

SPM6/U1/10-11

Rounding

Round	to the nearest thousand	to the nearest ten thousand	to the nearest hundred thousand	to the nearest million
1. 1 266 721	1 267 000	1 270 000	1 300 000	1 000 000
2. 3 464 390	3 464 000	3 460 000	3 500 000	3 000 000
3. 8 717 180	8 717 000	8 720 000	8 700 000	9 000 000
4. 579 163	579 000	580 000	600 000	1 000 000
5. 1 298 115	1 298 000	1 300 000	1 300 000	1 000 000
6. 3 504 500	3 505 000	3 500 000	3 500 000	4 000 000
7. 4 819 771	4 820 000	4 820 000	4 800 000	5 000 000
8. 5 676 300	5 676 000	5 680 000	5 700 000	6 000 000
9. 9 237 462	9 237 000	9 240 000	9 200 000	9 000 000

SPM6/U1/12-13

Decimals

Write the decimal.

1. one and three-hundredths 1.03
2. twenty-five thousandths 0.025
3. one hundred and five-tenths 100.5

What does each 6 mean?

4. 8.601 6 tenths
5. 4.036 6 thousandths
6. 0.161 6 hundredths

Write the words.

7. 0.408 four hundred eight-thousandths
8. 300.7 three hundred and seven-tenths

Write the decimal.

9. twelve-hundredths 0.12
10. four hundred and seventy-five thousandths 400.075
11. four hundred seventy-five thousandths 0.475

What does each 3 mean?

12. 1.063 3 thousandths
13. 10.63 3 hundredths
14. 106.3 3 tenths

Write the words.

15. 7.04 seven and four-hundredths
16. 7.040 seven and forty-thousandths

NAME _____

Practice

What does each 5 mean?

1. 163.058 5 hundredths
2. 9 853 372 5 ten thousands
3. 83.125 5 thousandths
4. 960.5 5 tenths
5. 75 404 5 thousands
6. 5 700 472 5 millions

Write the numeral.

7. four hundred thousand three hundred seventy-eight 400 378
8. two hundred and twenty-eight hundredths 200.28
9. four and seventy-five thousandths 4.075
10. five million six hundred fifty thousand four 5 650 004
11. thirty-seven thousand thirty-seven 37 037
12. three and six-hundredths 3.06

Write the words.

13. 300.8 three hundred and eight-tenths
14. 2 008 060 two million eight thousand sixty
15. 70 502 seventy thousand five hundred two
16. 2.004 two and four-thousandths
17. 5.20 five and twenty-hundredths
18. 406 046 four hundred six thousand forty-six

Use >, <, or = to make true statements.

19. 23 323 < 23 330
20. 575 577 < 577 075
21. 2 181 181 > 2 118 188
22. 648 468 = 648 468
23. 90 839 089 > 90 830 989
24. 4 213 234 < 4 213 240

Write in expanded form.

25. 50 380 50000 + 300 + 80
26. 602 000 600 000 + 2 000
27. 730 040 700 000 + 30000 + 40
28. 8 091 020 8 000000 + 90000 + 1000 + 20

List from least to greatest.

29. 858 678, 856 778, 856 787
856 778, 856 787, 858 678

List from greatest to least.

30. 3 454 054, 3 445 045, 3 454 405
3 454 405, 3 454 054, 3 445 045

Round to the

31. nearest ten thousand.
275 000
280 000

32. nearest hundred thousand.
1 348 772
1 300 000

33. nearest million.
29 502 834
30 000 000

NAME _____

Addition Basic Facts Practice

Add.

1. 5 + 2 = 7	2. 2 + 4 = 6	3. 4 + 3 = 7	4. 3 + 6 = 9	5. 6 + 1 = 7	6. 1 + 2 = 3	7. 2 + 7 = 9	8. 7 + 0 = 7
9. 0 + 5 = 5	10. 5 + 6 = 11	11. 6 + 4 = 10	12. 4 + 8 = 12	13. 8 + 5 = 13	14. 5 + 7 = 12	15. 7 + 3 = 10	16. 3 + 8 = 11
17. 8 + 6 = 14	18. 6 + 7 = 13	19. 7 + 7 = 14	20. 7 + 9 = 16	21. 9 + 4 = 13	22. 4 + 7 = 11	23. 7 + 5 = 12	24. 5 + 9 = 14
25. 9 + 9 = 18	26. 9 + 6 = 15	27. 6 + 8 = 14	28. 8 + 7 = 15	29. 7 + 4 = 11	30. 4 + 9 = 13	31. 9 + 8 = 17	32. 8 + 3 = 11

SPM6/U2/16-17

Using Sums of 10

Add. Use sums of 10.

1. 1, 4, 6, 9, 8 = 28 (10 + 10 + 8)	2. 2, 7, 3, 8, 4 = 24 (10)	3. 6, 1, 9, 2, 8 = 26	4. 8, 3, 1, 7, 2 = 21	5. 5, 2, 4, 5, 8 = 24

6. 2, 6, 4 = 12	7. 2, 4, 8, 2 = 16	8. 1, 4, 9, 6, 8 = 28	9. 9, 6, 7, 4, 3 = 29	10. 3, 6, 5, 7, 5 = 26

11. 8 + 3 + 1 + 7 + 2 = 21

12. 4 + 7 + 1 + 6 + 9 = 27

13. 1 + 3 + 6 + 2 + 9 + 5 + 1 + 8 + 4 + 7 = 46

14. 5 + 1 + 4 + 2 + 4 + 1 + 0 + 3 + 9 = 29

NAME

SPM6/U2/18-19

Adding Two Numbers

First round and add to estimate each sum.
Then find the exact sum.

Estimate first.	Estimate first.	
1. 12 678 → 13 000 15 461 → 15 000 28 139 28 000 Then add.	2. 31 269 → 31 000 7 813 → 8 000 39 082 39 000 Then add.	3. 2950 3400 4659 5000 7609 8000

4. 825 439 830 000 28 394 30 000 853 833 860 000	5. 63 456 63 000 27 568 28 000 91 024 91 000	6. $261.33 $260.00 166.65 170.00 $427.98 $430.00
7. 6473 6 000 7434 7 000 13 907 13 000	8. 76 432 76 000 59 183 59 000 135 615 135 000	9. 47 989 48 000 70 732 71 000 118 721 119 000

SPM6/U2/20-21

Adding More Than Two Numbers

Add.

1. $\overset{1\,2}{5}13$ 734 396 217 1860	2. $\overset{1}{1}45$ 39 871 1055	3. 3971 2264 4545 6882 17 662	4. $216.63 0.45 18.29 970.23 $1205.60

5. 1571 8824 3675 14 070	6. 1439 8021 5384 5152 19 996	7. $3048 9656 2742 5312 $20 758	8. 42 269 54 361 25 372 3 156 125 158
9. 13 092 49 011 24 570 69 408 30 451 186 532	10. 65 403 521 21 646 42 318 3 583 133 471	11. 26 958 43 452 1 638 21 055 627 93 730	12. $252.95 201.48 657.32 909.47 286.11 $2307.33

NAME _____

Practice

Add.

1. 7
   9
   16

2. 2
   5
   8
   15

3. $1.64
   0.71
   $2.35

4. 2941
   296
   38
   3275

5. 17 013
   1 412
   3 050
   21 475

6. 174
   436
   653
   1263

7. 27 061
   41 593
   68 654

8. 2 806 129
   1 005 734
   441 039
   4 252 902

9. $420.68
   157.39
   $578.07

10. 47
    67
    33
    147

11. 25 + 75 + 35
    135

12. 86 + 109 + 24
    219

13. $47.36 + $52.28
    $99.64

14. $975 + $6237 + $8550
    15 762

15. 279 + 141 + 835
    1255

Solve. Show your work.

16. Marguerite paid $4.75 for perfume and $9.36 for cosmetics. How much did she pay in all? $14.11

17. Seven adult tickets cost $19.25. Five children's tickets cost $7.50. What is the total ticket cost? $26.75

18. In 1976, 3858 t of lobster were caught off Prince Edward Island. 5904 t were caught off Nova Scotia. How many tonnes were caught in all? 9762 t

19. In Newfoundland there were 119 565 t of cod caught and 249 t of haddock caught in 1976. What was the total catch of these two kinds of fish? 119 814 t

20. In three provinces the numbers of hay balers in use in 1960 were 30 860, 31 093, and 4927. What was the total number of balers in use? 66 880

21. For this week, Peter's regular pay is $274.83. His overtime pay is $36.77. His bonus is $25.00. What is his total pay? $336.60

NAME _____

Subtraction Basic Facts Practice

Subtract.

1. 5 − 2 = 3	2. 4 − 3 = 1	3. 5 − 1 = 4	4. 9 − 4 = 5	5. 8 − 5 = 3	6. 6 − 3 = 3	7. 7 − 3 = 4
8. 10 − 4 = 6	9. 11 − 6 = 5	10. 12 − 5 = 7	11. 10 − 7 = 3	12. 11 − 3 = 8	13. 12 − 8 = 4	14. 11 − 4 = 7
15. 13 − 7 = 6	16. 14 − 6 = 8	17. 13 − 8 = 5	18. 14 − 5 = 9	19. 13 − 9 = 4	20. 12 − 4 = 8	21. 15 − 8 = 7
22. 16 − 7 = 9	23. 14 − 9 = 5	24. 13 − 5 = 8	25. 17 − 8 = 9	26. 16 − 9 = 7	27. 12 − 7 = 5	28. 10 − 5 = 5

Subtraction With No Regrouping

Subtract.

1. 489 − 365 = 124	2. 8247 − 4140 = 4107	3. 95 796 − 90 245 = 5 551	4. $579.29 − $168.08 = $411.21

5. 89 − 30 = 59	6. 835 − 324 = 511	7. 5865 − 4653 = 1212	8. 33 894 − 3 731 = 30 163	9. 69 577 − 26 201 = 43 376
10. 7245 − 6225 = 1020	11. $56 786 − 24 365 = $32 421	12. 8696 − 5321 = 3375	13. 79 859 − 31 218 = 48 641	14. $695.32 − 503.12 = $192.20

15. 94 635 − 73 623 = 168 258

16. 27 179 − 1 504 = 25 675

17. $962.64 − $202.50 = $760.14

NAME

SPM6/U2/26-275

Subtraction With Regrouping

Round and subtract to estimate each difference.
Then find the exact difference.

1. 58 637 → 60 000 19 863 → 20 000 38 774 40 000 Estimate first. Then subtract.	2. 39 461 → 40 000 26 837 → 30 000 12 624 10 000 Estimate first. Then subtract.	3. $827.64 $300.00 486.78 $340.86

4. 4719 − 2364 = 2355

5. 62 760 − 27 135 = 35 625

6. 76 721 − 19 543 = 57 178

7. $16 515 − 7 086 = $ 9 429

8. 61 450 − 13 636 = 47 814

9. 78 363 − 8 382 = 69 981

10. $913.73 − 598.45 = $315.28

11. 96 310 − 79 542 = 16 768

12. $355.32 − 275.69 = $ 79.63

SPM6/U2/28-29

Subtraction, Regrouping with Zeros

Subtract.

1. 20 000 17 365 2 635	2. 13 000 7 876 5 124	3. 6090 5431 659	4. 80 606 78 695 1911

5. 800 − 436 = 364

6. 110 090 − 76 297 = 33 793

7. 3080 − 2431 = 649

8. 5000 − 4281 = 719

9. $780.78 − 273.97 = $506.81

10. 70 050 − 43 465 = 26 585

11. 86 008 − 46 857 = 39 151

12. $110.00 − 34.57 = $ 75.43

13. $700.00 − $325.74 = $374.26

14. $80 308 − $57 561 = $22 747

15. 700 090 − 457 831 = 242 259

NAME _____

Practice

Perform the indicated operation.

1. $\begin{array}{r} 7 \\ 2 \\ 3 \\ +\ 8 \\ \hline 20 \end{array}$

2. $\begin{array}{r} 49\,417 \\ -\ 7\,265 \\ \hline 42\,152 \end{array}$

3. $\begin{array}{r} 4276 \\ 6853 \\ +\ 134 \\ \hline 11\,263 \end{array}$

4. $\begin{array}{r} \$45.77 \\ -\ 21.95 \\ \hline \$23.82 \end{array}$

5. $\begin{array}{r} 40\,301 \\ -16\,517 \\ \hline 23\,784 \end{array}$

6. $\begin{array}{r} 2731 \\ 4106 \\ 273 \\ +\ 1915 \\ \hline 9025 \end{array}$

7. $\begin{array}{r} \$6371 \\ +\ 4287 \\ \hline \$10\,658 \end{array}$

8. $\begin{array}{r} 46\,030 \\ -19\,275 \\ \hline 26\,755 \end{array}$

9. $\begin{array}{r} 271\,000 \\ 826\,000 \\ +\ 914\,000 \\ \hline 2\,011\,000 \end{array}$

10. $\begin{array}{r} 15 \\ 94 \\ 26 \\ 85 \\ +\ 17 \\ \hline 237 \end{array}$

11. $\$6.38 + \$3.72 + \$4.19$ $\$14.29$

12. $\$36.85 + \$4.73 + \$9.16$ $\$50.74$

13. $868\,217 - 142\,976$ $725\,241$

14. $27\,003 - 4\,918$ $22\,085$

Solve. Show your work.

15. During 1976, the fishing industry caught 96 286 t of herring off Nova Scotia and 75 296 t off New Brunswick. How much was the total catch? 171 582 t

16. Matt's mother is looking at two used cars. One costs $2795. The other costs $4000. How much more expensive is the second one? $1205

17. Canaries in the pet store cost $11.25. Budgies cost $18.95. What would one of each cost in all? $30.20

18. In 1966 Manitoba had 39 747 farms. In 1976 there were only 29 963 farms. How many fewer farms were there in 1976? 9784

19. In 1976 the numbers of farms in Manitoba, Saskatchewan, and Alberta were 29 963, 69 578, and 57 310, respectively. How many farms were there in all three provinces? 156 851

20. The distance from Kamloops to Vancouver is 425 km. From Prince Rupert to Vancouver it is 1522 km. How much further away from Vancouver is Prince Rupert? 1097 km

NAME

SPM6/U3/36-37

Organizing Information

These are the scores on a spelling test given to a group of students.

90	80	50	70	80	80	70	80
70	60	60	70	70	100	60	50	60
60	90	80	70	80	70	60	70

first row tallied

This tally chart shows that 8 students scored 80 or better.

Score	Tally	Number
80-100	𝍸 |	9
50-70	𝍸 𝍸 𝍸 |	16

1. Complete a tally chart to show the number of students who have each score.
2. What is the highest score? 100
3. What is the lowest score? 50
4. What score occurs most frequently? 70
5. What score occurs only once? 100
6. How many students were tested? 25

Score	Tally	Number
100	|	1
90	||	2
80	𝍸 |	6
70	𝍸 |||	8
60	𝍸 |	6
50	||	2

SPM6/U3/38-39

Pictographs

Draw a pictograph.

1. Show how many games of chess were won by each.

Student	Games Won
Sara	18
Jonathon	24
Laszlo	22
Tanya	28

Chess Games Won

Sara	♙ ♙ ♙ ♙ |
Jonathon	♙ ♙ ♙ ♙ ♙ ♙
Laszlo	♙ ♙ ♙ ♙ ♙ |
Tanya	♙ ♙ ♙ ♙ ♙ ♙ ♙

♙ stands for 4 games won.

Draw a pictograph.
Use another sheet of paper.

2. Show the number of student birthdays each month.

Jan.	8,	Feb.	4,	March	4,
April	6,	May	16,	June	10,
July	10,	Aug.	12,	Sept.	14,
Oct.	18,	Nov.	8,	Dec.	10

3. Show the number of dogs washed by each at the Grade 6 Dog Wash.

Gwen 6,	Cesaro 8
Rhea 10,	Richard 12
Andrea 8,	Brad 6
Carrie 10,	Aurelia 2

Pictographs may vary.

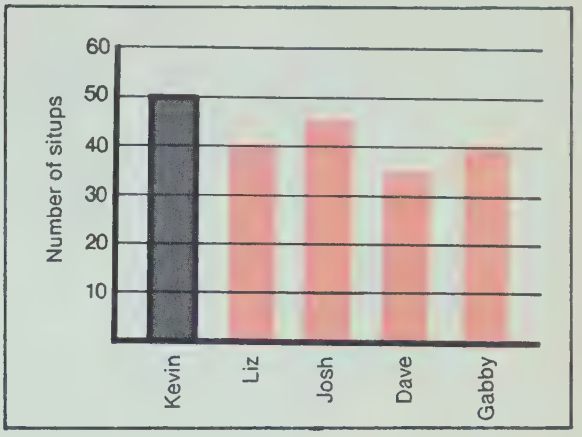
Pictographs may vary.

Bar Graphs

Draw a bar graph.

1. Show the number of situps each can do in 1 min.

Name	Number of Situps
Kevin	50
Liz	40
Josh	45
Dave	35
Gabby	40



Draw a bar graph. Use another sheet of paper.

2. Show the number of pushups each can do in 1 min.

Name	Number of Pushups
Kevin	45
Liz	35
Josh	45
Dave	50
Gabby	40

3. Show the number of jumps with a jump rope that each can do in 1 min.

Name	Number of Jumps
Kevin	70
Liz	55
Josh	50
Dave	60
Gabby	65

Practice

Solve. Show your work.

1. There were 165 623 tractors in use in Ontario and 139 487 in Saskatchewan in 1976. How many more were being used in Ontario? 26 136

2. Mr. Richaud paid $217.65 for a new table saw. He also bought a drill for $37.50. What was the total that he spent? $255.15

3. 37 421 logs were already at the pulp mill. 8 587 more were brought in during the month. How many logs did that make altogether? 46 008

4. Lucille bought dog food in cans for $7.27 and a bag of dry dog food for $12.46. How much more did the dry dog food cost? $5.19

5. Martha drove 707 km from Victoria to Quesnel, then 533 km from Quesnel to Dawson Creek. Finally, she drove 652 km from Dawson Creek to Williams Lake. How far did she travel in all. 1892 km

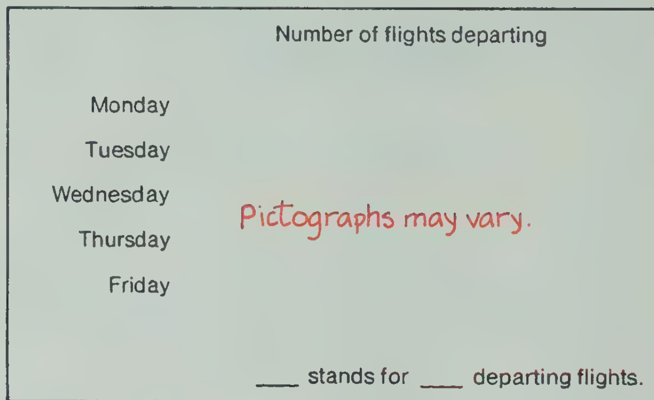
6. In 1973 - 1974, there were 25 000 immigrants to Canada from Hong Kong, 30 000 from Portugal, and 50 000 from the U.S.A. What was the total number of these immigrants? 105 000

NAME ____

Practice

An airport servicing several small towns had several flights departing each day. Draw a pictograph to show the following information.

	Days	Number of Flights Departing
1.	Monday	22
	Tuesday	28
	Wednesday	24
	Thursday	23
	Friday	35



Edward asked the children in Grade 6 to name the kinds of lunches they like best. He drew a bar graph to show their answers.

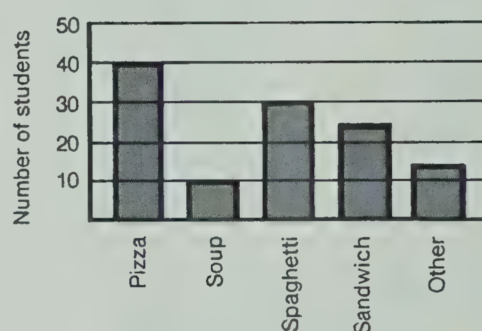
2. Which lunch was the favorite? pizza

3. Which lunch was the least favorite? soup

4. How many children liked pizza or spaghetti? 70

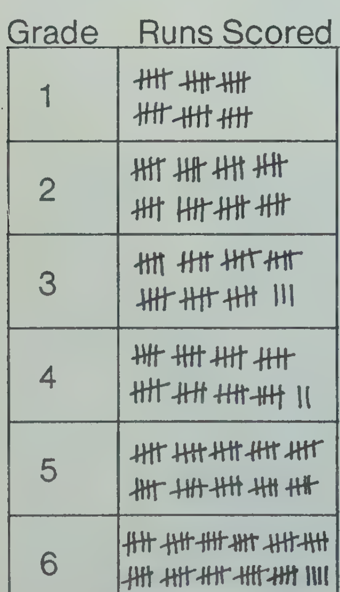
5. Which did more children prefer, a sandwich or spaghetti? spaghetti

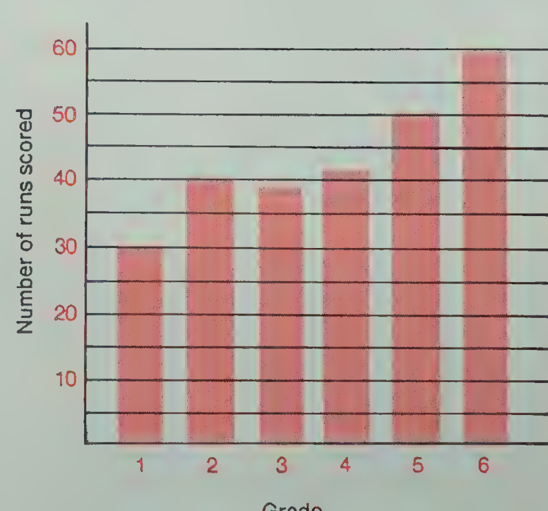
6. How many children did Edward ask? 120



The tally sheet shows the number of runs scored in kickball by children in Grades 1-6 for one week. Draw a bar graph to show this information.

7.

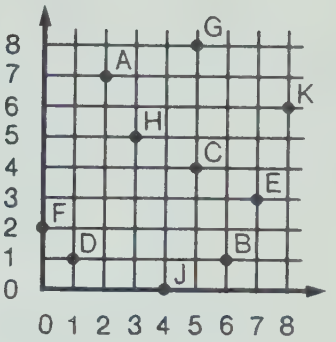




NAME

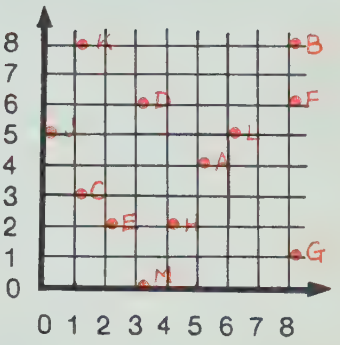
Ordered Pairs of Numbers and Points on a Grid

Give the ordered pair that matches.



1. point A (2,7)	2. point B (6,1)
3. point C (5,4)	4. point D (1,1)
5. point E (7,3)	6. point F (0,2)
7. point G (5,8)	8. point H (3,5)
9. point J (4,0)	10. point K (8,6)

Plot these points on the grid at the right.



11. A (5, 4)
12. B (8, 8)
13. C (1, 3)
14. D (3, 6)
15. E (2, 2)
16. F (8, 6)
17. G (8, 1)
18. H (4, 2)
19. J (0, 5)
20. K (1, 8)
21. L (6, 5)
22. M (3, 0)

Practice

Solve. Show your work.

1. Dr. Killian considered two routes for a vacation drive to Montreal. The route through Toronto was 1681 km. The route through Sudbury was 1492 km. How much shorter was the Sudbury route? 189 km

2. Mrs. McGuigan had a good crop of sweet corn. She raised 421 crates of sweet corn in July, 684 crates in August, and 315 crates in September. What was her total sweet corn crop? 1420 crates

3. Three trips were made by the rented car in one week. One was 68 km from Victoria to Vancouver. Another was 288 km from Vancouver to Princeton. The third was 649 km from Princeton to Prince George. Altogether how far did the car travel this week? 1005 km

4. The large shed has 14 200 m^3 (cubic metres) of space. The small one has 9555 m^3 of space. How much more volume does the large shed have? 4645 m^3

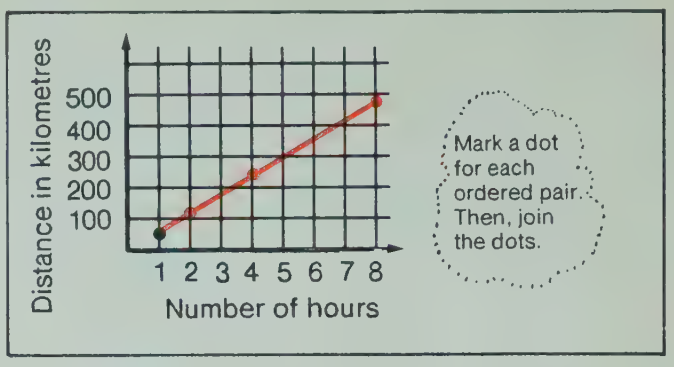
NAME

SPM6/U3/44-45

Line Graphs

Draw a line graph for the information given.

	Number of hours	Distance in kilometres
1.	1	60
	2	120
	4	240
	8	480



Use the graph you drew.

2. What is the distance for 6 h? (about) 360 km
3. About how long did it take to go 200 km? (about) $3\frac{1}{3}$ h

Use another sheet of paper. Draw a line graph.
Then use your graph to help you answer the questions.

	Number of Apples	Price
4.	2	25¢
	4	50¢
	6	75¢
	12	150¢

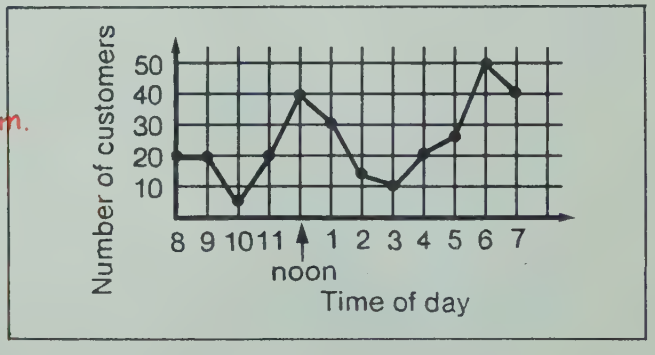
5. About how much would 10 apples cost? (about) 125¢
6. I have 90¢. Is that enough fo 7 apples? no
7. How much more must I pay for 12 apples than for 8 apples? (about) 50¢

SPM6/U3/46-47

Broken-Line Graphs

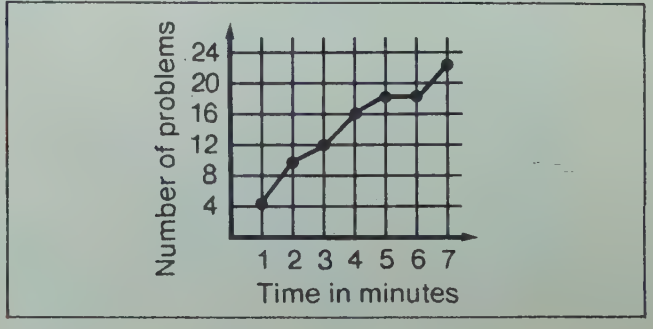
The graph shows the number of customers in the restaurant.

1. When were the most customers in the restaurant? 6 p.m.
2. When were the fewest customers there? 10 a.m.
3. Were there more customers at 1 p.m. or at 5 p.m.? How many more? 1 p.m., 5
4. During which hour did the number of customers increase the most? 5-6 p.m.



The graph shows the number of problems solved by Julia in the Math Bee.

5. How many did Julia solve in 5 min? 18
6. How many problems did she solve during the fourth minute? 2
7. During which minute did she solve the fewest problems? fifth
8. After 2 min, Julia had solved 9 problems. By when had she doubled that number? 5 min.



NAME _____

Practice

Perform the indicated operation.

1. $\begin{array}{r} 7 \\ 8 \\ 3 \\ +\ 2 \\ \hline 20 \end{array}$

2. $\begin{array}{r} 278 \\ -199 \\ \hline 79 \end{array}$

3. $\begin{array}{r} 27\,481 \\ +\ 96\,627 \\ \hline 124\,108 \end{array}$

4. $\begin{array}{r} \$48.19 \\ -\ 21.75 \\ \hline \$26.44 \end{array}$

5. $\begin{array}{r} 273 \\ 419 \\ +\ 2108 \\ \hline 2800 \end{array}$

6. $\begin{array}{r} \$218.41 \\ -\ 95.80 \\ \hline \$122.61 \end{array}$

7. $\begin{array}{r} 2813 \\ 4907 \\ +\ 6628 \\ \hline 14\,348 \end{array}$

8. $\begin{array}{r} 884\,162 \\ 27\,861 \\ +\ 9\,350 \\ \hline 921\,373 \end{array}$

9. $\begin{array}{r} 27\,020 \\ -\ 8\,163 \\ \hline 18\,857 \end{array}$

10. $\begin{array}{r} \$27.00 \\ -\ 14.68 \\ \hline \$12.32 \end{array}$

11. 42 381 + 6 498 = 48 879

12. 86 014 − 27 075 = 58 939

13. $570.36 − $289.18 = $281.18

Solve. Show your work.

14. Each boy who came to the party brought some games to be used. Pierre brought 4 games, Jan brought 3, Alf brought 6, and Ian brought 5. Together, how many did they bring? 18

15. The small airplane would cost the company $13 900 without all-weather instruments and $21 336 with the instruments. How much would the extra instruments cost? $7436

16. In 1977 the Canadian mint produced 89 120 791 nickels and 99 634 555 quarters. Together, how many of these two kinds of coins were minted?
188 755 346

17. Mr. Stewart's racing ten-speed bike cost $225.55. His daughter's ten-speed cost $110.95. How much more expensive was the father's bike?
$114.60

18. When Mrs. Wakeman went to shop, she spent $55.41 on groceries. Her son spent $7.81 in the drugstore. Together, what did they spend?
$63.22

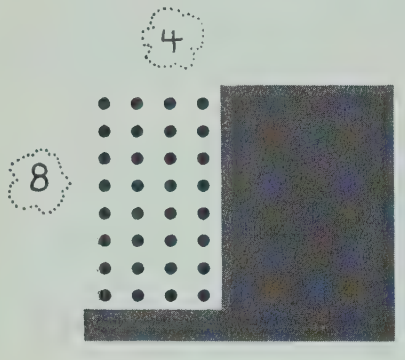
19. When two large universities were asked about the number of students attending, one replied 14 250 and the other said 9 877. What was the total for the two universities?
24 127

NAME

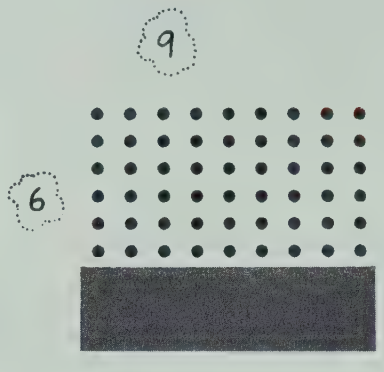
Basic Multiplication Facts

Multiply.

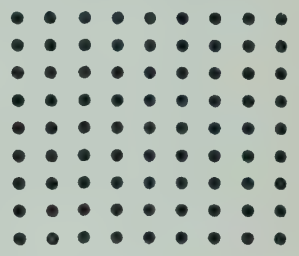
1. 8 x 4 32



2. 6 x 9 54



Cover as needed to help you find the products.



3. 2 x 4 8	4. 3 x 3 9	5. 5 x 2 10	6. 4 x 5 20
7. 6 x 3 18	8. 2 x 8 16	9. 6 x 5 30	10. 3 x 7 21
11. 9 x 4 36	12. 5 x 8 40	13. 6 x 6 36	14. 4 x 7 28
15. 8 x 7 56	16. 7 x 9 63	17. 9 x 8 72	18. 8 x 6 48

Multiply. Time yourself for each row.

19. 2 × 2 = 4	20. 4 × 3 = 12	21. 1 × 5 = 5	22. 2 × 6 = 12	23. 3 × 2 = 6	24. 4 × 4 = 16	25. 3 × 5 = 15
26. 7 × 2 = 14	27. 4 × 6 = 24	28. 8 × 3 = 24	29. 5 × 5 = 25	30. 7 × 5 = 35	31. 4 × 8 = 32	32. 9 × 3 = 27
33. 5 × 9 = 45	34. 7 × 7 = 49	35. 9 × 6 = 54	36. 8 × 5 = 40	37. 9 × 9 = 81	38. 5 × 7 = 35	39. 8 × 8 = 64
40. 9 × 2 = 18	41. 3 × 6 = 18	42. 5 × 4 = 20	43. 7 × 4 = 28	44. 6 × 8 = 48	45. 9 × 7 = 63	46. 7 × 8 = 56

NAME

SPM6/U4/52-53

Multiplying by a One-Digit Number

Multiply.

1. 976 × 4 = 3904	2. 6059 × 3 = 18 177	3. 5157 × 5 = 25 785	4. 9250 x 6 = 55 500

5. 864 × 7 = 6 048

6. 5382 × 4 = 21 528

7. 60 138 × 6 = 36 078

8. 4216 × 9 = 37 944

9. 16 309 × 8 = 130 472

10. 38 609 × 3 = 115 827

11. 59 308 × 2 = 118 616

12. 20 937 × 7 = 146 559

13. 7604 × 6 = 45 624

14. 4209 × 5 = 21 045

15. 179 x 9 = 1611

16. 7 x 8095 = 56 665

17. 4852 x 8 = 38 816

SPM6/U4/54-55

Multiplying by Multiples of 10, 100, and 1000

Multiply.

1. 27 × 30 = 810 (3 x 27)	2. 286 × 200 = 57 200 (2 x 286)	3. 358 × 500 = 179 000	4. 421 x 7000 = 2 947 000

5. 146 × 400 = 58 400

6. 963 × 90 = 86 670

7. 675 × 2000 = 1 350 000

8. 307 × 800 = 245 600

9. 468 × 1000 = 468 000

10. 35 × 3000 = 105 000

11. 573 × 70 = 40 110

12. 496 × 600 = 297 600

13. 803 × 1000 = 803 000

14. 380 × 400 = 152 000

15. 357 x 8000 = 2 856 000

16. 418 x 300 = 125 400

17. 649 x 50 = 32 450

NAME

SPM6/U4/56-57

Multiplying by a Two-Digit Number

Multiply.

1. 536 × 23
   1608 ← 3 × 536
   10720 ← 20 × 536
   12 328

2. 421 × 46
   2 526 ← 6 × 421
   16 840 ← 40 × 421
   19 366

3. 83 × 47
   3901

4. 28 × 704
   19 712

5. 73 × 64
   4672

6. 247 × 75
   18 525

7. 628 × 27
   16 956

8. 985 × 82
   80 770

9. $6983 × 56
   $391 048

10. 14 × 8694
    121 716

11. 99 × 7053
    698 247

12. 53 × $4605
    $244 065

SPM6/U4/58-59

Multiplying by a Three-Digit Number

Multiply.

1. 715 × 503
   2 145 ← 3 × 715
   357 500 ← 500 × 715
   359 645

2. 617 × 432
   1 234 ← 2 × 617
   18 510 ← 30 × 617
   246 800 ← 400 × 617
   266 544

3. $523 × 980
   $512 540

4. 356 × 807
   287 292

5. 204 × 521
   106 284

6. $278 × 813
   $226 014

7. 469 × 530
   248 570

8. 168 × 849
   142 632

9. $947 × 672
   $636 384

10. 487 × 685
    333 595

11. 360 × $867
    $312 120

12. 395 × 706
    278 870

NAME _____

Practice

Perform the indicated operation.

1. $8 \times 7 = 56$

2. $\$83.21 + 19.46 = \$63.75$

3. $207 - 188 = 19$

4. $\$243 \times 5 = \$1215$

5. $15\,281 + 4\,968 + 32\,071 = 52\,320$

6. $\$79.08 - 15.29 = \$63.79$

7. $46 \times 60 = 2760$

8. $284 + 76 + 3194 + 647 = 4201$

9. $9 \times 6 = 54$

10. $128 \times 274 = 35\,072$

11. $\$43.16 - \$27.85 = \$15.31$

12. $482 \times 36 = 17\,352$

13. $842 + 3104 + 867 = 4813$

Solve. Show your work.

14. On his paper route, Sidney delivers to 27 customers each day. How many papers will he deliver during the 28 d of February? 756

15. The cost of repairs from the storm came to $117 500. Insurance paid $95 875. How much remained to be paid? $21 625

16. At the candy factory Mrs. Tonka's job is to put 25 mints in each box and 36 boxes in each carton. How many mints will there be in each carton? 900

17. The truck on its deliveries covered 585 km this week, 789 last week, and is expected to drive 650 km next week. What will the total distance be? 2024 km

18. The boys all brought out their butterfly collections. Jon had 37 butterflies. Manny had 41. Brook had 26. What was the total number of butterflies in their collections? 104

19. Millie owed her mother $42 for clothing. This week she paid her $7. Last week she paid $4.50. How much does she still owe? $30.50

NAME

SPM6/U4/62-63

Using Multiplication to Divide

Divide. Write the remainder beside the quotient when the remainder is not 0.

1. $8\overline{)50}$ 6 R2 48 2	2. $9\overline{)76}$ 8 R4 72 4	3. $4\overline{)35}$ 8 R3 4. 36 ÷ 5 7 R1

5. $3\overline{)29}$ 9 R2

6. $7\overline{)38}$ 5 R3

7. $9\overline{)42}$ 4 R6

8. $4\overline{)24}$ 6

9. $6\overline{)55}$ 9 R1

10. $5\overline{)24}$ 4 R4

11. $8\overline{)56}$ 7

12. $7\overline{)34}$ 4 R6

13. $6\overline{)48}$ 8

14. $3\overline{)26}$ 8 R2

15. 66 ÷ 8 8 R2

16. 63 ÷ 7 9

17. 40 ÷ 6 6 R4

18. 35 ÷ 9 3 R8

Practice

Solve. Show your work.

1. Jenny arranged the 28 medals in 4 equal rows. How many medals were in each row? 7

2. The book has 872 pages. Warren has read 395 already. How many pages remain? 477

3. The school buys pencils in large quantities. There are 144 pencils in a box and the principal ordered 12 boxes. How many pencils would this be? 1728

4. Scientists estimated the spacecraft would travel 21 554 km during the first hour of its journey and 28 175 km during the second. What would be the total distance covered for the first two hours? 49 719 km

5. Stuart earned $275 each week for 44 weeks this year. How much did he earn? $12 100

6. Sian paid $143.79 for her ticket. She was able to get a $15.00 refund on an unused part. How much did the ticket cost her? $128.79

NAME

SPM6/U4/64-65

Dividing by a One-Digit Number

Divide.

1. $6\overline{)534}$
   89
   48
   54
   54
   0

2. $7\overline{)645}$
   92 R1
   63
   15
   14
   1

3. $5\overline{)3210}$
   642

4. $543 \div 7$
   77 R4

5. $4\overline{)298}$
   74 R2

6. $8\overline{)231}$
   28 R7

7. $2\overline{)7310}$
   3655

8. $9\overline{)1030}$
   114 R4

9. $3\overline{)\$2226}$
   \$ 742

10. $1029 \div 3$
    343

11. $6911 \div 5$
    1382 R1

12. $\$77\,882 \div 7$
    \$11 126

SPM6/U4/66

Zeros in the Quotient

Divide.

1. $4\overline{)3214}$
   803 R2
   32
   014
   12
   2

2. $6\overline{)5432}$
   905 R2
   54
   032
   30
   2

3. $5\overline{)3521}$
   704 R1

4. $64\,407 \div 7$
   9201

5. $2\overline{)4118}$
   2059

6. $5\overline{)7048}$
   1409 R3

7. $8\overline{)7264}$
   908

8. $3\overline{)30\,012}$
   10 004

9. $4963 \div 7$
   709

10. $62\,042 \div 6$
    10 340 R2

11. $8043 \div 4$
    2010 R3

NAME

SPM6/U4/67

Finding the Average

Find the average. Show your work on another sheet of paper.

1. On the weekdays Julie ran 8, 3, 5, 7, and 7 km. What was the average distance run each day?
   $8+3+5+7+7=30$
   $5\overline{)30}$ → 6
   6 km

2. By innings, the Jay's scored 3, 0, 5, 4, 3, 6, 3, 1, and 2 runs. What was the average number of runs scored each inning? 3

3. 9, 8, 5, and 6 h — 7 h

4. 2901, 2891, and 2899 kg — 2897 kg

5. 21, 28, 15, 30, 32, and 18 min — 24 min

6. 284, 296, 302, 190, 290, 350, 270, and 218 d — 275 d

7. 1700, 1650, 1740, and 1734 cars — 1706

8. $4567, $5467, $3456, $4563, and $5037 — $4 618

9. 300, 400, 200, 410, 220, 330, 305, and 283 points — 306

10. 59, 82, 87, 64, 77, 71, 68, 84, and 110 people — 78

SPM6/U4/68-69

Dividing by Multiples of 10

Divide.

1. $40\overline{)1890}$ → 47 R10
   160 (40 × 4)
   290
   280 (40 × 7)
   10

2. $60\overline{)2520}$ → 42
   240 (60 × 4)
   120
   120
   0

3. $90\overline{)2100}$ → 23 R30

4. $30\overline{)2589}$ → 86 R9

5. $80\overline{)1987}$ → 24 R67

6. $30\overline{)3960}$ → 132

7. $50\overline{)23\,189}$ → 463 R39

8. $70\overline{)45\,630}$ → 651 R60

9. $60\overline{)28\,455}$ → 474 R15

10. $20\overline{)14\,660}$ → 733

11. $40\overline{)3456}$ → 86 R16

12. $80\overline{)56\,380}$ → 704 R60

NAME

SPM6/U4 /70-71

Dividing by a Two-Digit Number

Divide.

1. $71\overline{)2543}$ = 35 R58
   213 (70 × 3)
   413
   355 (70 × 5)
   58

2. $62\overline{)3821}$ = 61 R39 (60 × 6)
   372
   101
   62
   39

3. $56\overline{)5460}$ = 97 R28

4. $41\overline{)98\,766}$ = 2 408 R38

5. $19\overline{)1672}$ = 88

6. $91\overline{)6532}$ = 71 R71

7. $78\overline{)64\,506}$ = 82

8. $82\overline{)21\,074}$ = 257

SPM6/U4/72-73

Dividing by a Two-Digit Number

Estimate the quotient. Then divide to find the quotient.

1. $42\overline{)3287}$ = 78 R11 (Estimate first. $40\overline{)3200}$ = 80)
   294
   347
   336
   11

2. $93\overline{)27\,319}$ = 293 R70 (Estimate first. $90\overline{)27\,000}$ = 300)
   186
   871
   837
   349
   279
   70

3. $69\overline{)512}$ = 7 R29

4. $32\overline{)2539}$ = 79 R11

5. $18\overline{)1659}$ = 92 R3

6. $68\overline{)5504}$ = 80 R64

7. $59\overline{)5369}$ = 91

8. $41\overline{)12\,209}$ = 297 R32

9. $92\overline{)3647}$ = 39 R59

NAME

SPM6/U4/74-75

Dividing by a Three-Digit Number

Divide.

1. $302\overline{)18\,762}$ — 62 R38
   1812
   642
   604
   38

2. $417\overline{)16\,829}$ — 40 R149
   1668
   149

3. $400\overline{)12\,561}$ — 31 R161

4. $672\overline{)58\,464}$ — 87

5. $179\overline{)64\,430}$ — 359 R169

6. $814\overline{)53\,724}$ — 66

7. $569\overline{)76\,892}$ — 135 R77

8. $911\overline{)65\,748}$ — 72 R156

9. $549\overline{)43\,551}$ — 79 R180

10. $768\overline{)90\,019}$ — 117 R163

11. $478\overline{)37\,984}$ — 79 R222

12. $219\overline{)47\,961}$ — 219

Solve. Show your work.

13. The pension fund paid $81 000 to 324 persons. All received equal amounts. How much did each receive? $250

14. 2456 kg of seed were to be distributed among 8 bins. How many kilograms should go into each bin? 307 kg

15. The 32 teams began tryouts with 1024 players. What was the average number of players trying out per team? 32

16. The 3000 m of twine had to be cut into 40 pieces of equal length. How long would each piece be? 75 m

17. Shelby planned to read three books with a total of 1260 pages during February. How many pages should he read on the average for each of February's 28 d to finish the book? 45

18. The bottling plant filled 5250 bottles today. The bottles are placed in packages of 6. How many packages of 6 did the plant make today? 875

NAME _____

Practice

Perform the indicated operation.

1. $\$27.34 + 19.86 + 4.55 = \$51.75$

2. $27\overline{)497}$ = 18 R11

3. $32\overline{)6041}$ = 188 R25

4. $2079 - 406 = 1673$

5. $274 \times 38 = 10412$

6. $20\overline{)4320}$ = 216

7. $55\,470 + 9\,860 + 3\,215 = 68\,545$

8. $\$4302 - 457 = \$3845$

9. $83 \times 67 = 5561$

10. $24\overline{)1488}$ = 62

11. $383 \times 127 = 48\,641$

12. $18\overline{)14031}$ = 779 R9

13. $2620 - 1738 = 882$

14. $27\,341 \times 8 = 218\,728$

15. $71\overline{)62\,830}$ = 884 R66

16. $271 \times 145 = 39\,295$

17. $268 + 3104 + 92 = 3464$

18. $1000 \div 127$ = 7 R111

Solve. Show your work.

19. The 170 volunteers collected donations from 8840 households for flood victims. On the average how many households did each volunteer visit? 52

20. Each of the 33 telephone operators phoned 85 customers to ask how they felt about their telephone service. How many customers were phoned? 2805

21. Three women contributed to the lunch fund for the nursery school program. One gave \$15.00, a second gave \$18.75, and a third gave \$11.50. What was their total contribution? \$45.25

22. Two routes have been examined for a pipeline. One goes 1778 m through the hills and the other travels 1289 m through the valley. How much shorter is the valley route? 489 m

NAME

SPM6/U5/82-83

Tenths and Hundredths

Write the decimal and the word name for each.

1. ones | tenths | hundredths
   2 | 3 | 1 — 2.31
   two and thirty-one hundredths

2. tens | ones | tenths
   2 | 3 | 1 — 23.1
   twenty-three and one-tenth

3. ones | tenths | hundredths
   0 | 5 | 6 — 0.56
   fifty-six hundredths

4. ones | tenths | hundredths
   1 | 6 | 2 — 1.62
   one and sixty-two hundredths

5. tens | ones | tenths
   4 | 2 | 6 — 42.6
   forty-two and six-tenths

6. ones | tenths | hundredths
   0 | 1 | 8 — 0.18
   eighteen-hundredths

7. ones | tenths | hundredths
   0 | 0 | 7 — 0.07
   seven-hundredths

8. ones | tenths | hundredths
   1 | 0 | 4 — 1.04
   one and four-hundredths

SPM6/U5/84-85

Thousandths and Ten-Thousandths

Write the decimal.

1. six and two hundred one thousandths — 6.201
2. one and fifty-four thousandths — 1.054

Write the words.

3. 1.3002 — one and three thousand two ten-thousandths
4. 8.172 — 8 and 172 thousandths

Write the decimal.

5. three and two hundred five thousandths — 3.205
6. two hundred and forty-nine thousandths — 200.049
7. two hundred forty-nine thousandths — 0.249
8. four and twelve ten-thousandths — 4.0012

Write the words.

9. 5.806 — five and eight hundred six-thousandths
10. 0.005 — five-thousandths
11. 2.6125 — two and six thousand one hundred twenty-five ten-thousandths
12. 2.040 — two and forty-thousandths
13. 4.0308 — four and three hundred eight ten-thousandths
14. 0.687 — six hundred and eighty-seven thousandths

NAME _____

SPM6/U5/86-87

Comparing Decimals

Use >, <, or = to make true statements.

1. 8.42 > 8.4028	2. 6.3700 = 6.37	3. 0.208 < 0.2800
4. 5.4127 > 5.4121	5. 8.91 = 8.9100	6. 8.36 > 8.1
7. 0.8817 < 0.9	8. 0.21 < 0.211	9. 4.3120 = 4.312
10. 5.0832 > 5.038	11. 12.777 < 127.77	12. 2.89 < 2.9
13. 3.2 > 3.1001	14. 26.010 = 26.0100	15. 2.123 < 2.132
16. 0.0608 > 0.0068	17. 4.234 < 4.239	18. 1.355 > 1.3355
19. 2 = 2.000	20. 10.01 > 10.0010	21. 10.010 < 10.110

SPM6/U5/88-89

Ordering Decimals

List from least to greatest.

1. 0.101, 0.111, 0.1, 0.01 0.01, 0.1, 0.101, 0.111	2. 1.91, 1.119, 1.19, 1.9 1.119, 1.19, 1.9, 1.91
3. 1.28, 1.208, 1.282, 1.2 1.2, 1.208, 1.28, 1.282	4. 0.3217, 0.327, 0.3, 0.302 0.3, 0.302, 0.3217, 0.327

5. 7.521, 7.052, 7.5, 75.2
   7.052, 7.5, 7.521, 75.2

6. 0.5014, 0.514, 0.51, 0.504
   0.5014, 0.504, 0.51, 0.514

7. 10.001, 1.0001, 0.1001, 100.1
   0.1001, 1.0001, 10.001, 100.1

8. 6.2, 6.202, 6.022, 6.22
   6.022, 6.2, 6.202, 6.22

List from greatest to least.

9. 6.2, 6.021, 60.2, 6.12
   60.2, 6.2, 6.12, 6.021

10. 0.002, 0.2, 0.02, 0.202
    0.202, 0.2, 0.02, 0.002

11. 7.1, 7.010, 7.001, 7.11
    7.11, 7.1, 7.010, 7.001

12. 0.58, 0.581, 0.51, 0.508
    0.581, 0.58, 0.51, 0.508

13. 0.7341, 0.703, 0.74, 0.074
    0.74, 0.7341, 0.703, 0.074

14. 1, 1.2, 1.012, 1.21
    1.21, 1.2, 1.012, 1

NAME _____

Practice

Write the decimals.

1. four-tenths 0.4
2. nine and nine-tenths 9.9
3. four and thirty-two hundredths 4.32
4. seven and two-hundredths 7.02
5. thirty-seven thousandths 0.037
6. five and six-thousandths 5.006

7.

ones	tenths	hundredths	
8	2	9	8.29

8.

ones	tenths	hundredths	thousandths	
2	3	4	6	2.346

9.

0.155

10. six hundred twenty-two ten-thousandths
0.0622

Write the words.

11. 2.7 two and seven-tenths
12. 0.18 eighteen-hundredths
13. 6.37 six and thirty-seven hundredths
14. 8.095 eight and ninety-five thousandths
15. 0.189 one hundred eighty-nine thousandths
16. 2.1902 two and nineteen hundred two ten-thousandths

Use >, <, or = to make true statements.

17. 1.755 ≥ 1.75
18. 5.2525 ≤ 5.2552
19. 0.198 ≥ 0.1098
20. 5.6210 = 5.621
21. 3.908 ≥ 3.0980
22. 8.109 ≥ 8.091

List from least to greatest.

23. 2.8, 2.08, 2.208, 2.028
2.028, 2.08, 2.208, 2.8
24. 5.32, 5.302, 5.232, 5.3032
5.232, 5.302, 5.3032, 5.32
25. 0.6, 0.06, 0.0606, 0.606
0.06, 0.0606, 0.6, 0.606
26. 1.8521, 1.825, 1.8512, 1.852
1.825, 1.8512, 1.852, 1.8521

List from greatest to least.

27. 3.06, 3.606, 3.066, 3.6066
3.6066, 3.606, 3.066, 3.06
28. 1.939, 1.399, 1.93, 1.39
1.939, 1.93, 1.399, 1.39
29. 0.845, 0.8054, 0.8405, 0.85
0.85, 0.845, 0.8405, 0.8054
30. 3.2, 3.203, 32.002, 3.23
32.002, 3.23, 3.203, 3.2

NAME

SPM6/U5/90-91

Adding Decimals

Add.

1. 3.578 2.965 6.543	2. 3.854 0.61 2.4 1.388 8.252	3. 9.731 1.706 11.437	4. 9.21 4.286 6.0725 19.5685	5. 3.4 16.5 0.062 7.36 27.322

6. 2.523 + 7.39 + 0.817 = 10.73

7. 26.475 + 12.7 + 9.08 = 48.255

8. 6.02 + 4.38 + 15.385 + 8.5 = 34.285

9. $14.10 + 7.36 + 21.08 = $42.54

10. 4.2783 + 2.069 + 0.8 = 7.1473

11. 5.00 + 3.465 + 11.37 + 8.32 = 28.155

12. 45.15 + 8.947 + 7.86 + 4.56 = 66.517

Practice

Solve. Show your work.

1. Jung lined up three circuit boards end to end. The first was 12.71 cm, the second 6.96 cm, and the third 4.38 cm long. How long was the circuit board formed in this way? 24.05cm

2. When the votes were counted, 12 894 had voted for the Progressive Conservatives and 13 041 had voted for the Liberals. By how many votes did the Liberals win? 147

3. Janet and Patty pack the bulbs for shipment in cartons. 75 bulbs fit in each carton. 25 cartons fit in a packing crate. How many bulbs does each crate hold? 1875

4. The camp kitchen made 534 doughnuts. The 178 campers share them equally. How many doughnuts does each camper receive? 3

5. The computer shows its results on a screen with 20 lines. Each line has 72 characters. In all, how many characters can be shown? 1440

6. A shipment of 1068 bags of fertilizer are sent to a store. 6 workers share equally in the unloading. How many bags does each worker handle? 178

NAME

SPM6/U5/92-93

Adding Decimals and Whole Numbers

Add.

1. 3.6 + 7 + 15.481

```
  1 1
  3.6
  7
 15.481
 26.081
```

2. 5 + 7.29 + 3.6

15.89

3. 23 + 5.625 + 1.434

30.059

4. 7 + 3.0145 + 6.59

16.6045

5. 8 + 4.709 + 3

15.709

6. 5.04 + 7 + 2.5 + 6 + 3.067

23.607

7. 35.27 + 28.4 + 30 + 6.486

100.156

8. $15 + $3.75 + $4.50 + $6

$29.25

SPM6/U5/94-95

Subtracting Decimals

Subtract.

1. 0.8705 − 0.4232 = 0.4473

2. 512.3 − 360.9 = 151.4

3. 4.6 − 3.7009 = 0.8991

4. $97.50 − $4.80 = $92.70

5. 6.235 − 4.935 = 1.3

6. 24.006 − 3.758 = 20.248

7. $35.02 − 34.75 = $ 0.27

8. 94.063 − 6.78 = 87.283

9. 46.1 − 8.26 = 37.84

10. 68.7 − 9.336 = 59.364

11. 4.537 − 0.8 = 3.737

12. $3.40 − 0.55 = $ 2.85

13. 20.08 − 13.67 = 6.41

14. 0.3 − 0.208 = 0.092

15. 75.068 − 8.5 = 66.568

16. 6.005 − 2.8 = 3.205

17. 15.72 − 2.7335 = 12.9865

NAME

Subtracting Decimals and Whole Numbers

Subtract.

1. 5 − 2.25 4 9 10 ~~5.00~~ 2.25 2.75	2. 3 − 0.9456 2 999 10 ~~3.0000~~ 0.9456 2.0544	3. 107 − 8.98 98.02
4. \$4 − \$2.76 \$1.24	5. 5.623 − 3 2.62	6. 63 − 4.89 58.11
7. 7 − 5.0086 1.9914	8. \$9 − \$3.45 \$5.55	9. 8.7 − 2 6.7
10. 28 − 3.4658 24.5342	11. \$7.87 − \$4 \$3.87	12. 657 − 8.45 648.55
13. 20 − 7.99 12.01	14. 68 − 5.857 62.143	15. 9.7 − 3 6.7

Practice

Solve. Show your work.

1. Everyone who ran the qualifying race under 15 s entered the final. Meg ran the race in 13.83 s. How many seconds better than the qualifying time is this? 1.17 s

2. The moving van has a height of 3.5 m. It passed under a bridge with a clearance of 4.2 m. How much room did the truck have to spare? 0.7 m

3. Olga's letter had a mass of 17.3 g. The envelope had a mass of 9.14 g. Together what was their mass? 26.44 g

4. \$9720 was donated at 27 collection points in town for flood victims. What was the average amount collected at each collection point? \$360

5. Gina's mother worked 8 h a day, 5 d a week for 6 weeks at the factory. She earned \$7 for each hour of work. How much did she earn at the factory? \$1680

6. In the public opinion poll, 7384 favored the question, 2917 opposed it, and 721 had no opinion. In all, how many people were questioned? 11 022

NAME

SPM6/U5/98-99

Rounding Decimals

Round to the

nearest one:	1. 24.9	25		2. 1.098	1		3. 3.475	3
nearest tenth:	4. 4.75	4.8		5. 0.629	0.6		6. 30.5803	30.6
nearest hundredth:	7. 2.1039	2.10		8. 3.125	3.13		9. 2.697	2.70
nearest thousandth:	10. 0.4996	0.500		11. 4.3209	4.321		12. 7.3581	7.358

nearest one:	13. 5.5	6		14. 3.98	4		15. 16.495	16
nearest tenth:	16. 23.92	23.9		17. 9.9806	10.0		18. 20.307	20.3
nearest hundredth:	19. 0.0282	0.03		20. 8.8845	8.88		21. 6.0608	6.06
nearest thousandth:	22. 3.8054	3.805		23. 2.6995	2.700		24. 7.5550	7.555

SPM6/U5/100-101

Estimating Sums and Differences

Estimate each result. Then find the exact result.

1. Estimate first. $2.8 \rightarrow 3$, $+ 3.1 \rightarrow 3$; 5.9 Then add. 6

2. Estimate first. $1.27 \rightarrow 1.3$, $-0.884 \rightarrow 0.9$; 0.386 Then add. 0.4

3. $6.75 + 0.781 = 7.531$

4. $\$9.16 - 5.54 = \$3.62$

5. $9.7 + 7.2 = 16.9$

6. $0.771 + 0.284 = 1.055$

7. $\$4.26 - 1.08 = \$3.18$

8. $3.906 - 4.018 = 0.112$

9. $3.89 + 1.983 = 5.873$

10. $10.282 - 5.7 = 4.582$

11. $0.375 - 0.0267 = 0.3483$

12. $\$7.96 + 3.00 = \$10.96$

13. $6.742 - 1.0881 = 5.6539$

14. $1.691 + 5.41 = 7.101$

15. $\$5.92 - \$4.75 = \$1.17$

NAME _____

Practice

Perform the indicated operation.

1. $3.841 + 6.7$ = 10.541

2. $17\overline{)9031}$ = 531 R4

3. $12.2 - 7.163$ = 5.037

4. 287×63 = 18 081

5. $42\,186 + 9\,071 + 17\,255$ = 68 512

6. $5\overline{)2735}$ = 547

7. $\$5 - 2.38$ = $2.62

8. 337×60 = 20 220

9. $183\overline{)4206}$ = 22 R180

10. $6.819 + 7.34 + 0.6$ = 14.759

11. 506×138 = 69 828

12. $4.6 + 7.32 + 0.088$ = 12.008

13. $624 \div 12$ = 52

Solve. Show your work.

14. In our town 932 km of roadway were repaired and 17.6 km of new road were built. Together how many kilometres of road were worked on? 949.6 km

15. The Bruce family grew 82 170 kg of hay on 15 ha of land. What was the average amount of hay on each hectare? 5478 kg

16. The average mass of a small tractor on an assembly line was 455 kg. What was the total mass of a shipment of 25 such tractors? 11 375 kg

17. To tie a school record Amy had to run the last lap of the race in 54 s. She ran it in 52.57 s. By how many seconds did she beat the old record? 1.43 s

18. Amad's mother told him to pay for the $6.55 cleaning bill with a ten-dollar bill. How much change should he receive? $3.45

19. Mr. Li's factory shipped 42 713 t of product this year and 63 083 t last year. What was the total for the two years? 105 796 t

NAME

SPM6/U6/106-107

Measuring and Estimating Length

Tell whether you would use millimetre, centimetre, metre, or kilometre to measure each of these.

1. the width of this paper centimetre	2. the length of an ant millimetre	3. the distance from home to school kilometre
4. the height of the ceiling metre	5. the length of your ear centimetre	6. the thickness of an eraser millimetre
7. the distance from school to a park kilometre	8. the height of a soft drink can centimetre	9. the length of a fence near the school metre
10. the height of a stack of three dimes millimetre	11. the distance you can throw a ball metre	12. the length of a school bike rack metre

13. Give an estimate for each of the above. Estimates will vary.

14. If possible, measure each of the above.

Practice

Solve. Show your work.

1. Kenny received a parcel which had a mass of 3.28 kg. His sister received a 7 kg parcel. How much lighter was Kenny's parcel? 3.72 kg

2. 12 000 advertising pieces were distributed equally to 30 agencies. How many pieces did each receive? 400

3. When the Lo family bought a new car the price was $7045. They received $586 as a trade-in on their old car. How much did they have to pay? $6459.00

4. Each of the lorries held 7866 kg of cargo. 23 full lorries were used to ship material to the base. How much material was shipped? 180 918 kg

5. Jana put her model together from three pieces of plastic. One had a mass of 7.612 g. Another had a mass of 2.4 g. The mass of the third was 4.88 g. What was the total mass? 14.892 g

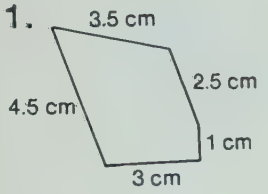
6. The Verde's vacation trip covered 8413 km by air, 1677 km by rail, and 970 km by road. Altogether, how far did they travel? 11 060 km

NAME

SPM6/U6/108-109

Finding Perimeter

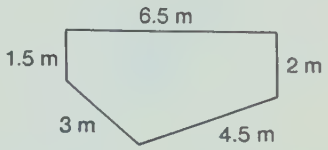
Find the perimeter of each.

1. 

1
3.5
2.5
1.0
3.0
4.5
14.5 cm

2.

5
9
3
3
4
24 dm

3. 

17.5 m

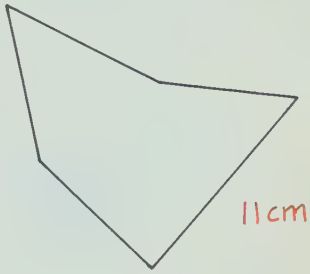
Measure to the nearest centimetre. Then find the perimeter.

4.

12 cm

5.

13 cm

6. 

11 cm

Find the perimeter of each.

7. a pentagon with sides of 10 m, 9 m, 4 m, 3.5 m, and 7 m
33.5 m

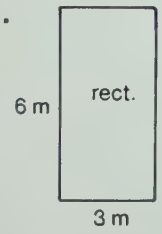
8. a polygon with sides of 9 cm, 3 cm, 3 cm, 6 cm, 2 cm, and 5 cm
28 cm

9. a quadrilateral with sides of 4.5 dm, 4.5 dm, 3 dm, and 3 dm
15 dm

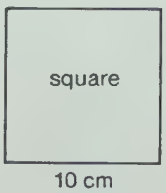
SPM6/U6/110-111

Using a Rule to Find Perimeter

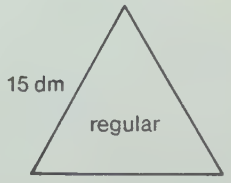
Find the perimeter.

1. 

2 x 3 6
2 x 6 12
18 m

2. 

4 x 10
40 cm

3. 

45 dm

4. a rectangle, 5 km by 7 km 24 km

5. a regular hexagon with each side of length 3 cm 18 cm

6. a square with a side of length 9 m 36 m

7. an arena floor 30 m long and 16 m wide 92 m

8. a piece of paper 28 cm by 22 cm
100 cm

9. a regular octagon with sides of length 14 cm 112 cm

NAME

Practice

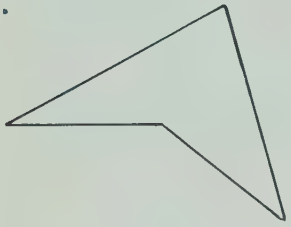
Choose a unit of measurement for each.

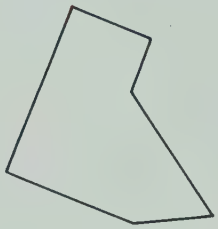
1. the length of the main street in your town kilometre
2. the thickness of a slice of bread millimetre
3. the length of a pencil centimetre
4. the length of a flagpole metre

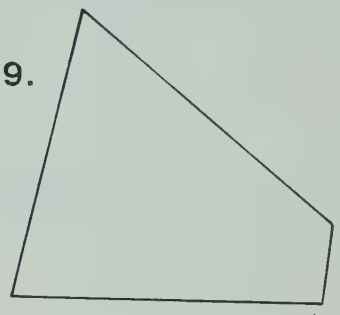
Choose a unit of measurement for each. Estimate. Then measure to the nearest unit.

5. the distance from your knee to your ankle Answers will vary.
6. the length of your thumbnail Answers will vary.

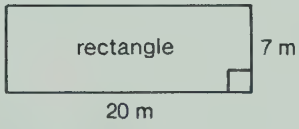
Measure to the nearest centimetre. Then find the perimeter.

7. 
10 cm

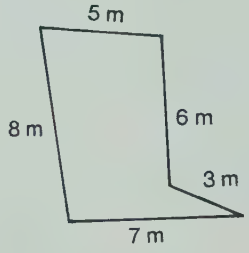
8. 
9 cm

9. 
13 cm

Find the perimeter of each.

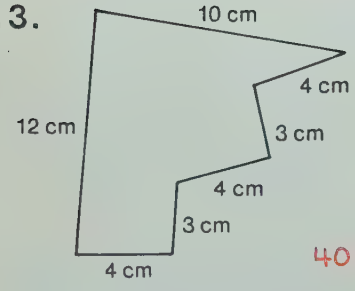
10. 

54 m

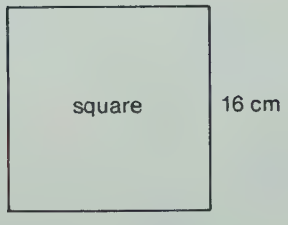
11. 

29 m

12. a triangle with sides of 27 mm, 32 mm, and 44 mm
103 mm

13. 

40 cm

14. 

64 cm

15. a rectangle 5 km by 9 km
28 km

16. a square with sides of 10 m 40 m
17. a rectangle with base 4 cm, height 8 cm 24 cm
18. a regular hexagon with sides of 7 cm
42 cm

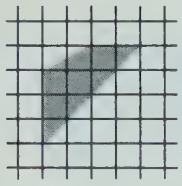
19. a floor that is 34 m long and 20 m wide 108 m
20. an exercise mat 58 cm wide and 148 cm long 412 cm
21. a regular pentagon with sides of 14 cm
70 cm

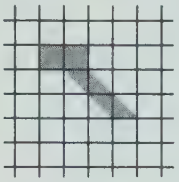
NAME

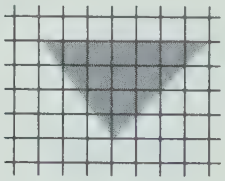
SPM6/U6/112-113

Counting to Find the Area

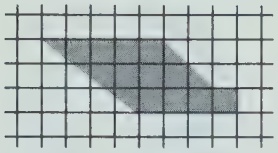
Find the area of each shape. Each square represents 1 cm^2.

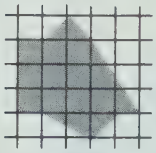
1.  7 cm^2

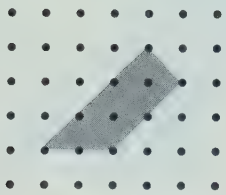
2.  4 cm^2

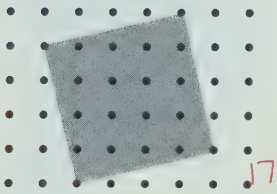
3.  14 cm^2

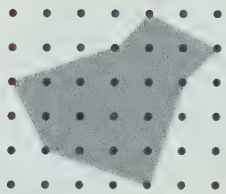
4. 4 cm^2

5.  14 cm^2

6.  14.5 cm^2

7.  5 cm^2

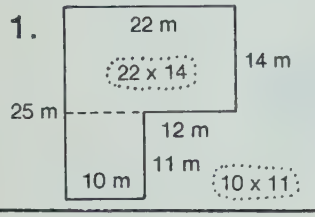
8.  17 cm^2

9.  15.5 cm^2

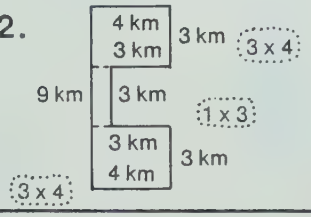
SPM6/U6/114-115

Using a Rule to Find Area

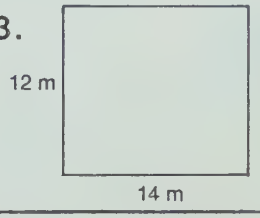
Find the area.

1. 

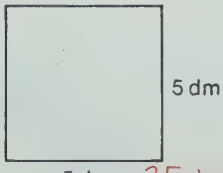
308
110
418 m^2

2. 

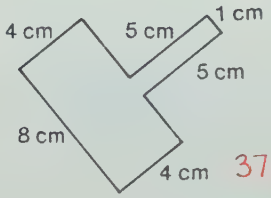
27 km^2

3. 

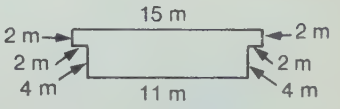
168 m^2

4. 

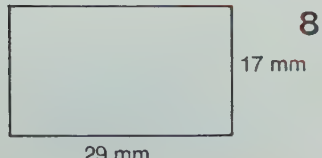
25 dm^2

5. 

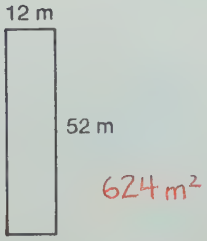
37 cm^2

6. 

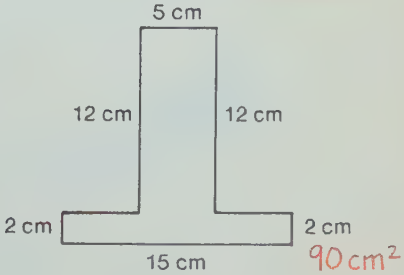
74 m^2

7. 

493 mm^2

8. 

624 m^2

9. 

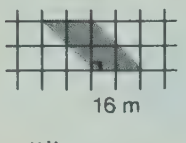
90 cm^2

NAME

SPM6/U6/116-117

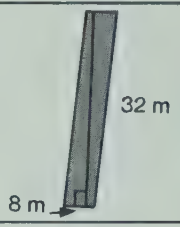
Finding the Area of a Parallelogram

Find the area.

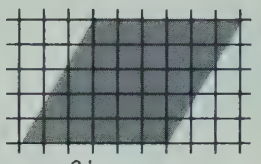
1. 

Area = base x height

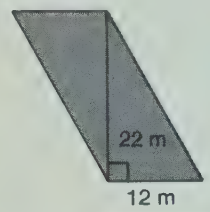
16
16
96
16
256 m²

2. 

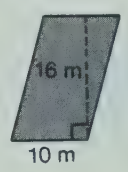
32
8
16
24
256 m²

3. 

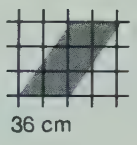
30 km²

4. 

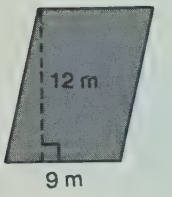
264 m²

5. 

160 m²

6. 

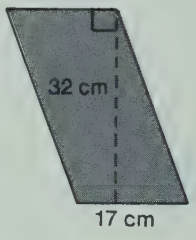
1944 cm²

7. 

108 m²

8.

2 km²

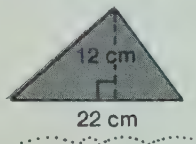
9. 

544 cm²

SPM6/U6/118-119

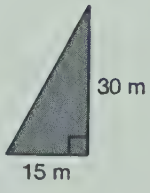
Finding the Area of a Triangle

Find the area.

1. 

Area = $\frac{\text{base x height}}{2}$

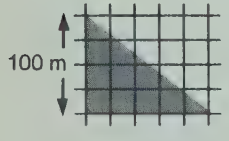
$\frac{22 \times 12}{2}$
$= \frac{264}{2}$
= 132 cm²

2. 

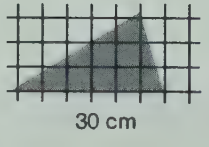
$\frac{15 \times 30}{2}$
$= \frac{450}{2}$
= 225 m²

3.

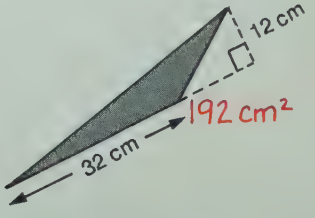
150 cm²

4. 

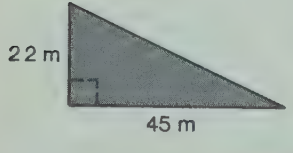
6250 m²

5. 

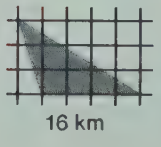
225 cm²

6. 

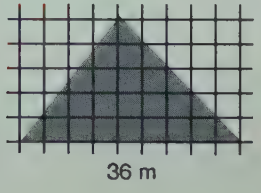
192 cm²

7. 

495 m²

8. 

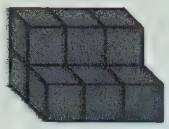
96 km²

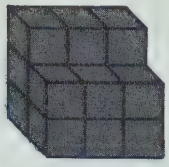
9. 

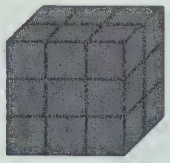
360 m²

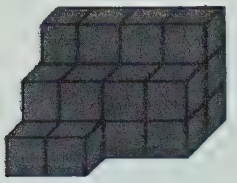
Finding Volume by Counting Cubes

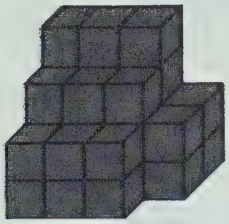
Find the volume. Each cube represents a cubic centimetre.

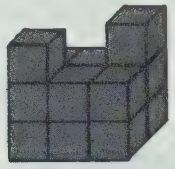
1.  9cm³

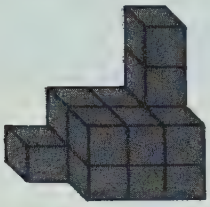
2.  15 cm³

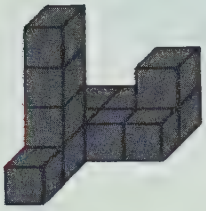
3.  18 cm³

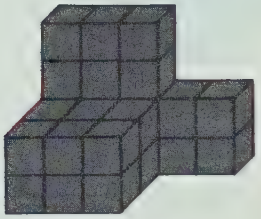
4.  22 cm³

5.  31 cm³

6.  14 cm³

7.  15 cm³

8.  12 cm³

9.  28 cm³

Practice

Solve. Show your work.

1. Steve's crew baked bread for the college dining hall. They used 381 kg of flour, 315 kg of milk, 61 kg of shortening, and 37 kg of egg mix. What was the total mass of the ingredients? 794 kg

2. The helicopter flew directly to the camp. It covered 181 km. The truck which followed on the trail had to travel 356 km. How much shorter was the direct air route? 175 km

3. The city block in which Karl lives is a rectangle 215 m in length and 75 m in width. What is the area of the block? 16 125 m²

4. The 17 workers in Mrs. Igo's factory assembled 3927 kits. What was the average number of kits assembled by each worker? 231

5. The price of the dress Carol bought for the wedding was $79.95, but Mr. Draper sold it to her for $65.50. How much did she save? $14.45

6. The seed company produced 750 packets. Each held 3.5 g of seed. How many grams of seed were used? 2625 g

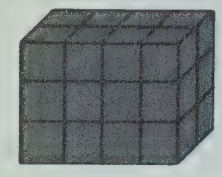
NAME

SPM6/U6/124-125

Finding Volume From Cubic Units in Layers

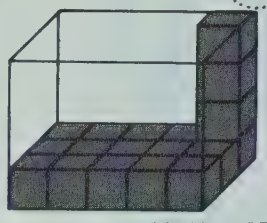
Find the volume of each rectangular prism. Each cube represents a cubic centimetre.

1. 4 by 2 by 3



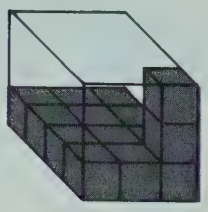
$4 \times 2 \times 3 = 24\ cm^3$

2. 5 by 3 by 4



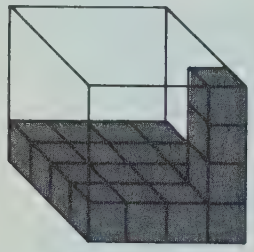
$60\ cm^3$

3.



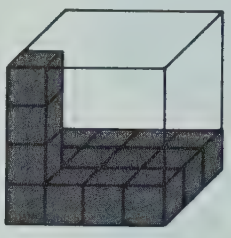
$36\ cm^3$

4.



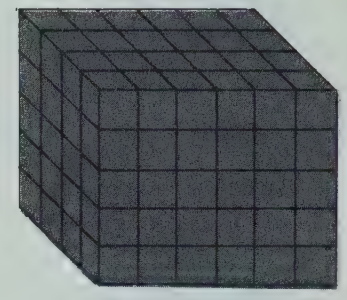
$80\ cm^3$

5.



$48\ cm^3$

6.



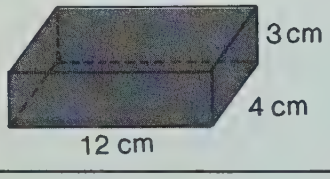
$120\ cm^3$

SPM6/U6/126-127

Finding Volume by Multiplying Area of Base by Height

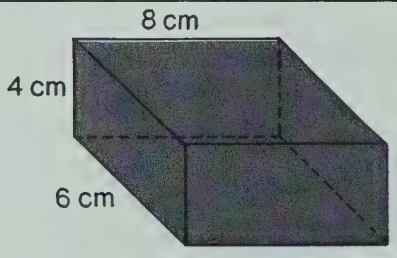
Find the volume of each rectangular prism.

1. Volume = Area of base x height



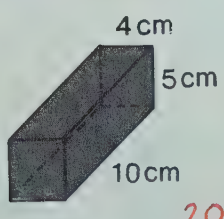
$12 \times 4 \times 3$
$= 144\ cm^3$

2.



$1920\ cm^3$

3.

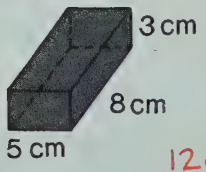


$200\ cm^3$

4.

$126\ m^3$

5.



$120\ cm^3$

6. Base: 6 cm by 3 cm
Height: 11 cm
$198\ cm^3$

7. Base: 8 cm by 7 cm
Height: 6 cm
$336\ cm^3$

8. Base: 9 m by 9 m
Height: 9 m
$729\ m^3$

9. Base: 10 cm by 5 cm
Height: 8 cm
$400\ cm^3$

10. Base: 11 dm by 8 dm
Height: 7 dm
$616\ dm^3$

11. Base: 12 m by 4 m
Height: 10 m
$480\ m^3$

NAME _____

Practice

Perform the indicated operation.

1. $\begin{array}{r} 27\,410 \\ 8\,693 \\ +\ 2\,550 \\ \hline 38\,653 \end{array}$

2. $\begin{array}{r} 2007 \\ -\ 1498 \\ \hline 509 \end{array}$

3. $\begin{array}{r} 803 \\ \times\ 60 \\ \hline 48\,180 \end{array}$

4. $\begin{array}{r} \$16.32 \\ 48.19 \\ +\ 20.83 \\ \hline \$85.34 \end{array}$

5. $\begin{array}{r} 4.7 \\ -2.98 \\ \hline 1.72 \end{array}$

6. $7\overline{)4206}$ 600 R6

7. $23\overline{)429}$ 18 R15

8. $\begin{array}{r} 4.861 \\ \times\ 5 \\ \hline 24.305 \end{array}$

9. $\begin{array}{r} 7.4 \\ 12.19 \\ +\ 3.865 \\ \hline 23.455 \end{array}$

10. $\begin{array}{r} \$15.00 \\ -\ 7.84 \\ \hline \$\ 7.16 \end{array}$

11. $12 \times 23 \times 81$ = 22 356

12. $5 - 4.31$ = 0.69

13. $2736 + 841 + 89$ = 3666

14. $\$16 + \$7.31$ = $8.69

15. $7.6 - 2.81$ = 4.79

16. $299 \div 13$ = 23

Solve. Show your work.

17. To prepare for the gathering of Olympic athletes, the warehouse held 145 000 kg of beverages and 62 000 kg of fresh food. In all how many kilograms were being stored? 207 000 kg

18. The Ruperts planned a trip of 4250 km. By the end of the second week they had covered 3675 km. How much farther did they plan to go? 575 km

19. Sven's employer told him to divide the 276 candies into 6 equal piles for packaging. How many would go into each pile? 46

20. Mary's mother was on a diet to lose 7 kg. By the end of one month she had lost 2.6 kg. How much more did she have to lose? 4.4 kg

21. The shipping crate has a length of 40 cm, a width of 30 cm, and a height of 25 cm. What is its volume? 30 000 cm^3

22. The triangular sail for the racing boat has a base of 6.2 m and a height of 8.5 m. What is its area? 26.35 m^2

NAME

SPM6/U7/134-135

Multiplying Decimals and Whole Numbers

Multiply.

1. 8.97 (2 places)
23
2691
17940
206.31 (2 places)

2. 0.715 (3 places)
42
1430
28600
30.030

3. 7.93
6
47.58

4. 53 x 0.978
51.834

5. 4.69
5
23.45

6. 12.6
63
793.8

7. 0.90
18
16.20

8. 7.451
96
715.296

9. 20.43
603
12 319.29

10. 412 x 43.8
18045.60

11. 29 x 0.369
10.701

12. 47 x 90.2
4239.4

SPM6/U7/136-137

Placing the Decimal Point

Multiply.

1. 5.21 (2 places)
37
3647
15630
192.77 (2 places)

2. 8.2 (1 place)
61
82
4920
500.2

3. 0.706
43
30.358

4. 13 x $7.06
$91.78

5. 4.69
3
14.07

6. 0.567
9
5.103

7. 36.8
26
956.8

8. $1.24
45
$55.80

9. 27.8
307
8534.6

10. 144 x 0.227
32.688

11. 208 x 0.028
5.824

12. 42 x $17.09
$717.78

NAME

SPM6/U7/138-139

Multiplying Tenths

Multiply.

1. 6.8 (1 place) 2.7 (1 place) 476 1360 18.36 (2 places)	2. 2.3 (1 place) 4.8 (1 place) 184 920 11.04	3. 7.6 9.7 73.72	4. 2.4 x 4.1 9.84

5. 4.6 5.7 26.22	6. 3.9 3.9 15.21	7. 95 0.5 47.5	8. 3.5 7.1 24.85	9. 7.9 3.4 26.86

10. 0.8 x 7.8 6.24	11. 21.7 x 9.0 195.30	12. 6.5 x 0.1 0.65

SPM6/U7/140-141

Multiplying Hundredths and Thousandths

Multiply.

1. 7.63 (2 places) 4.1 (1 place) 763 3052 31.283 (3 places)	2. 3.46 (2 places) 5.23 (2 places) 1038 6920 173000 18.0958	3. 1.59 2.5 3.975	4. 6.42 x 1.13 7.2546

5. 7.19 5.7 40.983	6. 8.1 4.7 38.07	7. 2.57 7.43 19.0951	8. 5.46 6.8 37.128	9. 106.6 0.902 96.1532

10. 5.92 x 1.87 11.0704	11. 2.586 x 0.7 1.8102	12. 3.5 x 6.88 24.080

NAME _____

Practice

Perform the indicated operation.

1. 2.374×6.8 — 16.1432

2. $3.0001 - 0.976$ — 2.0241

3. $3\overline{)27\,154}$ — 9051 R1

4. $4682 + 374 + 2915$ — 7971

5. 3.04×2.75 — 8.36

6. $\$4 + 3.17$ — $ 7.17

7. 7419×86 — 638 034

8. $\$17 - 9.86$ — $ 7.14

9. $24\overline{)4091}$ — 170 R11

10. $20\overline{)607}$ — 30 R7

11. 2.73×1.9 — 5.187

12. $(86 - 41) \times 13$ — 585

13. $7.139 + 2.14 + 0.8$ — 10.079

Solve. Show your work.

14. Mrs. Fowler wonders how much tile she should buy for her kitchen floor. It is 2.71 m wide and 4.2 m long. What is its area? 11.382 m^2

15. The tile company tells Mrs. Fowler that the tile she wants costs \$6.85/m^2. She decides to buy 12 m^2. How much will she pay? \$82.20

16. Mrs. Fowler buys the tile, cement, and some small tools. The bill comes to \$93.52. She pays with two fifty-dollar bills. How much change does she receive? \$6.48

17. When Mrs. Fowler gets home she empties her purse and finds \$4.92. She decides to divide it equally among her 3 children. How much will each get? \$1.64

18. The operator at the scale keeps track of the loads the three trucks are carrying. The first took 9550 kg of sand. The second took 8775 kg. The third took 10 020 kg. What was the total load for the trucks? 28 345 kg

19. The machinist tells Mrs. Davis that the plate is 4.31 cm thick. Mrs. Davis instructs the machinist to remove another 0.615 cm from it. How thick will it be then? 3.695 cm

NAME

SPM6/U7/142-143

Two Decimal Factors, Products Less Than 1

Multiply.

1. 0.03 (2 places) 0.8 (1 place) 0.024 (3 places)	2. 0.7 (1 place) 0.6 (1 place) 0.42	3. 0.07 0.7 0.049	4. 0.03 x 0.09 0.0027

5. 0.08 0.8 0.064	6. 0.9 0.5 0.45	7. 0.43 0.7 0.301	8. 0.109 0.9 0.0981	9. 0.057 0.1 0.0057
10. 0.073 0.9 0.0657	11. 0.6 0.6 0.36	12. 0.79 0.04 0.0316	13. 0.25 0.9 0.225	14. 0.320 0.6 0.1920

15. 0.4 x 0.04
0.016

16. 0.923 x 0.2
0.1846

17. 0.72 x 0.8
0.576

SPM6/U7/146-147

Dividing By a One-Digit Number

Divide.

1.51 1. 3)4.53 3 15 15 03 3 0	2.44 2. 4)9.76 8 17 16 16 16 0	0.13 3. 5)0.65	0.221 4. 7)1.547	0.68 5. 5)3.40
2.39 6. 2)4.78	0.62 7. 8)4.96	0.576 8. 6)3.456	0.05 9. 4)0.20	2.72 10. 3)8.16
1.125 11. 2)2.25	0.07 12. 7)0.49	0.175 13. 8)1.4	0.46 14. 6)2.76	0.667 15. 3)2.001

NAME

SPM6/U7/148-149

Dividing By a Two-Digit or Three-Digit Number

Divide.

1. $41\overline{)33.62}$ → 0.82; 328, 82, 82, 0	2. $92\overline{)191.36}$ → 2.08; 184, 736, 736, 0	3. $72\overline{)133.2}$ → 1.85	4. $625\overline{)127.5}$ → 0.204

5. $94\overline{)766.1}$ → 8.15

6. $36\overline{)115.38}$ → 3.205

7. $71\overline{)65.32}$ → 0.92

8. $328\overline{)6625.6}$ → 20.2

SPM6/U7/150-151

Rounding Quotients

Divide. Round the quotient to the nearest tenth.

1. $32\overline{)74.50}$ → 2.32 → 2.3; 64, 105, 96, 90, 64, 26	2. $14\overline{)2.57}$ → 0.18 → 0.2; 14, 117, 112, 5	3. $7\overline{)22.7}$ → 3.2	4. $28\overline{)100}$ → 3.6

5. $9\overline{)56.4}$ → 6.27

6. $42\overline{)308.7}$ → 7.4

7. $86\overline{)83.4}$ → 1.0

8. $638\overline{)1301.5}$ → 2.0

Round the quotient to the nearest hundredth.

9. $48\overline{)96.3}$ → 2.01

10. $2\overline{)7.75}$ → 3.88

11. $71\overline{)5.54}$ → 0.08

12. $906\overline{)7202}$ → 7.95

NAME _____

Practice

Perform the indicated operation.

1. 0.026×0.3 = 0.0078

2. $2070 - 1468$ = 602

3. $7\overline{)8.61}$ = 1.23

4. $52\,813 + 16\,023 + 7\,414$ = 76 250

5. $\$738.16 + 4.20 + 39.56$ = $781.92

6. $23\overline{)15.41}$ = 0.67

7. $2.01 - 1.68$ = 0.33

8. 15.4×0.18 = 2.772

9. $71\overline{)7.952}$ = 0.112

10. $\$6.21 - 3.14$ = $3.07

11. $99.52 \div 32$ = 3.11

12. 6.1×3.75 = 22.875

13. $\$7 - \$4.32$ = $2.68

Solve. Show your work.

14. The air route to Toronto from Danielle's home city is 576 km. The route is 727 km by bus. How many kilometres shorter is the air route? 151 km

15. Jan mailed out 32 catalogues from the printers. She paid the post office $18.24. How much did each one cost to mail? $0.57 or 57¢

16. Murray kept records of all the people who used the observation tower. This week there were 1276. Last week there were 576. The week before there were 807. Altogether how many people used the tower? 2659

17. Scientists collected gold fragments from an old grave. The fragments had masses of 12.7 g, 6.39 g, 4.78 g, and 15.21 g. In all, how many grams of gold were collected? 39.08 g

18. Children's tickets to the animal show cost $1.35. Mrs. Proctor buys 17 for the children in her class. How much does this cost? $22.95

19. Ian is trying to cut a brass rod 29.2 cm long into 4 parts of equal length. How long should each part be? 7.3 cm

NAME

SPM6/U8/156-157

Metres, Decimetres, Centimetres, and Millimetres

Give each length

in metres.

1. 306 cm 3.06 m | 2. 4000 mm 4.0 m | 3. 58 dm 5.8 m | 4. 86 cm 0.86 m

in centimetres.

5. 75 mm 7.5 cm | 6. 8.9 m 890 cm | 7. 35 dm 350 cm | 8. 890 mm 89 cm

in millimetres.

9. 0.6 m 600 mm | 10. 9.2 cm 92 mm | 11. 0.5 dm 500 mm | 12. 5.13 m 5130 mm

in metres.

13. 1000 cm 10 m | 14. 7 dm 0.7 m | 15. 4 cm 0.04 m | 16. 800 mm 0.8 m

in centimetres.

17. 3 m 300 cm | 18. 100 mm 10 cm | 19. 6 dm 60 cm | 20. 0.4 m 40 cm

in millimetres.

21. 8 cm 80 mm | 22. 7 dm 700 mm | 23. 1.8 m 1800 mm | 24. 0.6 cm 6 mm

SPM6/U8/158-159

Units of Length, Kilometre to Millimetre

Complete.

1. 3 hm = 0.3 km	2. 5.2 km = 5200 m	3. 70 m = 700 dm
4. 280 mm = 28.0 cm	5. 78 m = 7.8 dam	6. 2.5 km = 250 hm

7. 0.04 m = 40 mm
8. 4500 m = 4.5 km
9. 600 cm = 6 m
10. 300 m = 0.3 km
11. 0.6 km = 60 dam
12. 6.1 m = 610 cm
13. 420 m = 4.2 hm
14. 2000 dam = 20 km
15. 7.3 cm = 730 mm

Which length is greatest?

16. 0.075 km, 7.5 hm, 75 m 7.5 hm
17. 0.6 dam, 7 cm, 800 dm 800 dm
18. 500 mm, 0.5 m, 50 dm 50 dm
19. 0.701 hm, 700 cm, 6.99 m 0.701 hm

kilo · hecto · deca · · deci · centi · milli

NAME

SPM6/U8/160-161

Capacity

Complete.

1. 3 L = 3000 mL	2. 7000 mL = 7 L	3. 0.7L = 700 mL
4. 1620 mL = 1.62 L	5. 6.2 L = 6200 mL	6. 2000 mL = 2 L
7. 0.8 L = 800 mL	8. 45 mL = 0.045 L	9. 4500 mL = 4.5 L
10. 0.09 L = 90 mL	11. 350 mL = 0.35 L	12. 10 L = 10 000 mL

Which is the better unit, millilitre or litre, for measuring the capacity of each of these?

13. a jar of baby food millilitre
14. a pail of water litre
15. a bottle of cough syrup millilitre
16. a can of house paint litre

SPM6/U8/162-163

Mass

Complete.

1. 4 kg = 4000 g	2. 6000 g = 6 kg	3. 0.58 kg = 580 g
4. 3500 g = 3.5 kg	5. 7.6 kg = 7600 g	6. 1050 g = 1.05 kg
7. 58 g = 0.058 kg	8. 0.7 kg = 700 g	9. 900 g = 0.9 kg
10. 2.075 kg = 2075 g	11. 0.048 kg = 48 g	12. 10 000 g = 10 kg

Which is the better unit, gram or kilogram, for measuring the mass of each of these?

13. a bag of popcorn gram
14. a horse kilogram
15. a necktie gram
16. your teacher's desk kilogram

NAME _____

Practice

Give each length in metres.

1. 172 cm 1.72
2. 6.4 dm 0.64
3. 2300 mm 2.3

Give each length in centimetres.

4. 0.59 dm 5.9
5. 8000 mm 800
6. 1.7 m 170

Give each length in millimetres.

7. 3.2 m 3200
8. 32 cm 320
9. 0.2 dm 20

Which length is greater?

10. 432 mm or 67 cm 67 cm
11. 52 dm or 2.7 m 52 dm

Complete.

12. 2000 m = 2 km
13. 0.26 km = 260 m
14. 8.2 hm = 820 m
15. 190 dam = 1900 m
16. 630 mm = 0.630 m
17. 0.08 m = 8 cm
18. 7.2 m = 7200 mm
19. 0.021 m = 0.21 dm
20. 87 hm = 8.7 km

Which length is greatest?

21. 872 mm, 0.7 m, or 2.1 dm 872 mm
22. 41 cm, 3.9 dm, or 0.92 m 0.92 m
23. 0.006 km, 600 cm, or 60 000 mm 60 000 mm
24. 499 m, 5000 cm, or 0.501 km 0.501 km

Complete each chart.

25.

millilitres	200	590	2350	900
litres	0.2	0.59	2.35	0.9

26.

grams	1450	210	9900	7
kilograms	1.45	0.21	9.9	0.007

Choose the best estimate for

27. the amount of drink in a punch bowl. 1 L
28. the mass of a box of pencils. 100 g
29. the amount of water that fills a bottle cap. 1 mL
30. the mass of a rabbit. 1 kg

1 mL	1 g
1 L	100 g
100 mL	1 kg

Choose the best unit, centimetre, metre, kilometre, litre, millilitre, gram, or kilogram for measuring each of these.

31. the length of a ribbon centimetre
32. the mass of a pencil gram
33. the length of a pine cone centimetre
34. the mass of a stereo set kilogram
35. the length of a river kilometre
36. the height of a tree metre
37. the amount of water a bucket can hold litre
38. the mass of a bar of soap gram
39. the amount of medicine in an eye dropper millilitre

NAME

SPM6/U8/164-165

Volume and Capacity

Complete.

1. 2 L = 2 dm^3 or 2000 cm^3	2. 0.6 kL = 0.6 m^3 or 600 dm^3
3. 3000 cm^3 = 3000 mL or 3 L	4. 40 mL = 40 cm^3 or 0.04 dm^3

5. 5.2 dm^3 = 5.2 L or 5200 mL
6. 0.35 L = 350 cm^3 or 0.35 dm^3
7. 0.76 m^3 = 0.001 L or 0.76 kL
8. 0.8 dm^3 = 800 mL or 0.8 L
9. 750 cm^3 = 750 mL or 0.75 L
10. 5000 mL = 5000 cm^3 or 5 dm^3
11. 4 m^3 = 4000 L or 4 kL
12. 9 kL = 9000 dm^3 or 9 kL m^3

Give the capacity in litres for each rectangular prism.

13. Base: 20 cm by 10 cm
    Height: 12 cm 2.4 L
14. Base: 9 cm by 12 cm
    Height: 6 cm 0.648 L
15. Base: 30 cm by 30 cm
    Height: 20 cm 18 L
16. Base: 14 cm by 8 cm
    Height: 15 cm 1.680 L

SPM6/U8/166-167

Volume, Capacity, and Mass

Complete.

1. 750 mL of water has mass of 750 g and volume of 750 cm^3	2. 200 g is the mass of 200 cm^3 or 0.2 L of water	3. 7 kL of water has mass of 7000 kg and volume of 7 m^3

4. 7 kg is the mass of 7 L or 7 dm^3 of water
5. 5 t is the mass of 5000 L or 5 m^3 of water
6. 4 m^3 of water has mass of 4000 kg and fills 4000 L
7. 0.06 L of water has mass of 60 g and volume of 0.06 dm^3
8. 500 g is the mass of 500 mL or 0.5 dm^3 of water
9. 2000 cm^3 of water has mass of 2 kg and fills 2000 mL

Give the mass of water in grams and kilograms held by each rectangular prism.

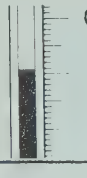
10. Base: 7 cm by 4 cm
    Height: 9 cm
    252 g
    0.252 kg
11. Base: 90 cm by 30 cm
    Height: 60 cm
    162 000 g
    162 kg
12. Base: 44 cm by 85 cm
    Height: 52 cm
    194 480 g
    194.48 kg

NAME

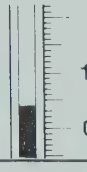
SPM6/U8/168-169

Temperature

Give the temperature.

1. 

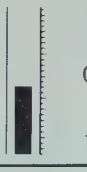
-9°C

2. 

4 °C

3.

24°C

4. 

-2°C

5.

6°C

6.

32°C

7.

16°C

8.

-17°C

From the list, select a temperature for each.

9. water freezes 0°C

10. cold winter day -10°C

11. hot summer day 30°C

12. water boils 100°C

13. spring or fall day 10°C

14. pleasant day 20°C

-10°C	0°C
10°C	20°C
30°C	100°C

SPM6/U8/170-171

Time

Write the time shown on each clock. Use a.m. or p.m.

1.
It's October. The sun has yet to rise.
1:55:20 a.m.

2.
It's October. The sun has set.
6:15:28 p.m.

3.
Supper is finished.
7:11:41 p.m.

4.
You are still in bed.
4:46:10 a.m.

5.
You have eaten lunch.
2:13:01 p.m.

6.
It's past bedtime.
10:35:51

Draw a digital clock for the time shown on the dial clock.

7.
morning
10:15:12

8.
evening
19:18:42

NAME _____

Practice

Perform the indicated operation.

1. $\begin{array}{r} 27\,031 \\ 9\,862 \\ +\ 775 \\ \hline 37\,668 \end{array}$

2. $\begin{array}{r} 4.817 \\ -3.26 \\ \hline 1.557 \end{array}$

3. $\begin{array}{r} 5.3 \\ \times 4.9 \\ \hline 25.97 \end{array}$

4. $14\overline{)2701}$ = 192 R13

5. $5\overline{)2.275}$ = 0.455

6. $\begin{array}{r} 162 \\ \times 387 \\ \hline 62\,694 \end{array}$

7. $\begin{array}{r} \$41.07 \\ -\ 16.43 \\ \hline 24.64 \end{array}$

8. $\begin{array}{r} 4.712 \\ +\ 6.3 \\ \hline 11.012 \end{array}$

9. $\begin{array}{r} \$3\,815 \\ 962 \\ +\ 10\,583 \\ \hline \$15\,360 \end{array}$

10. $163\overline{)4238}$ = 26

11. 0.71×0.03 = 0.021

12. $821 + 1416 + 27$ = 2264

13. $\$7 - \$4.03$ = \$2.97

14. $5.268 \div 3$ = 1.756

15. $(26 - 14) \times 80$ = 960

16. $42 \times 16 \times 81$ = 54 432

Solve. Show your work.

17. Each classroom at this university holds 25 people. There are 60 classrooms. How many people do the classrooms hold? 1500

18. A taxi driver collected \$87.16 in fares on Sunday, \$128.80 on Monday, and \$155.60 on Tuesday. What were the total receipts? \$371.56

19. The suit is on sale for \$117.50. Originally it sold for \$149.95. By how much has it been reduced? \$32.45

20. The sailmaker makes a triangular sail. Its base is 4 m and its height is 6.5 m. What is the area of this sail? 13 m^2

21. Wendy wants to store her collection of 243 paperback books. She packs them in 3 boxes with an equal number in each box. How many does she pack in each box? 81

22. The machine shop is making a rectangular plate 3.65 cm long and 2.8 cm wide. What will be the area of this plate? 10.22 cm^2

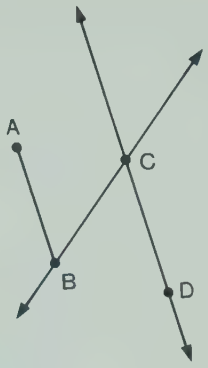
NAME

SPM6/U9/174-175

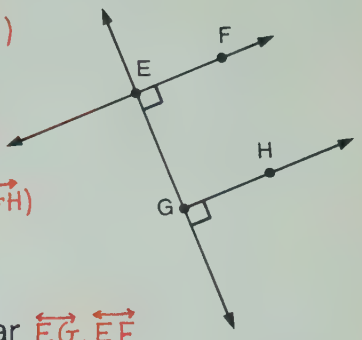
Lines, Line Segments, and Rays

For the picture, name

1. a line. $\overleftrightarrow{BC}$
2. a line segment. $\overline{AB}$
3. a ray. $\overrightarrow{CD}$
4. two intersecting lines. $\overleftrightarrow{BC}, \overleftrightarrow{CD}$
5. two parallel line segments. $\overline{AB}, \overline{CD}$



6. a line. $\overleftrightarrow{EG}$ (or $\overleftrightarrow{EF}$)
7. a line segment. $\overline{EG}$ (or $\overline{EF}$ or $\overline{GH}$)
8. a ray. $\overrightarrow{EF}$ (or $\overrightarrow{EG}$ or $\overrightarrow{GE}$ or $\overrightarrow{GH}$)
9. two parallel rays. $\overrightarrow{EF}, \overrightarrow{GH}$
10. two perpendicular lines. $\overleftrightarrow{EG}, \overleftrightarrow{EF}$



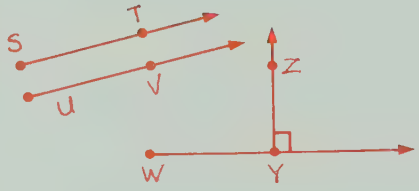
Draw and label each of these.

11. $\overleftrightarrow{KL}$

12. $\overrightarrow{MP}$

13. $\overline{QR}$

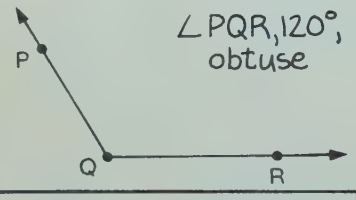
14. $\overleftrightarrow{ST}$ parallel to $\overrightarrow{UV}$
15. $\overrightarrow{WY}$ perpendicular to $\overrightarrow{YZ}$



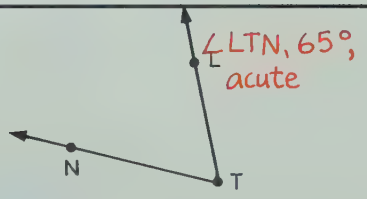
SPM6/U9/176-177

Angles

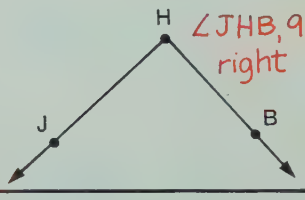
Name each angle. Measure the angle.
Tell whether it is acute, right, obtuse, or straight.

1. 

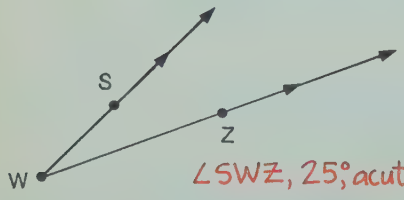
∠PQR, 120°, obtuse

2. 

∠LTN, 65°, acute

3. 

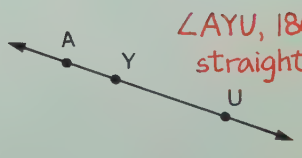
∠JHB, 90°, right

4. 

∠SWZ, 25°, acute

5.

∠CKM, 145°, obtuse

6. 

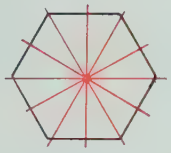
∠AYU, 180°, straight

Use another sheet of paper. Draw an angle for each measurement.

7. 30°
8. 100°
9. 90°
10. 47°
11. 163°
12. 82°

Line Symmetry

Name each polygon. Draw all of its lines of symmetry.
Give the number of vertices and the number of sides of each.

1. 

regular hexagon — 6 vertices, 6 sides

2.

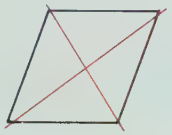
trapezoid — 4 vertices, 4 sides

3.

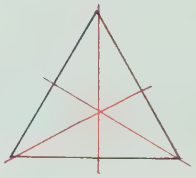
parallelogram — 4 vertices, 4 sides

4.

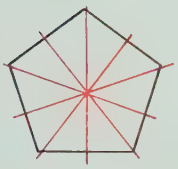
square — 4 vertices, 4 sides

5. 

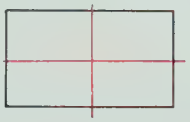
rhombus — 4 vertices, 4 sides

6. 

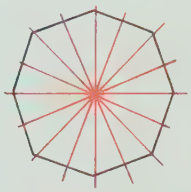
(equilateral) triangle — 3 vertices, 3 sides

7. 

(regular) pentagon — 5 vertices, 5 sides

8. 

rectangle — 4 vertices, 4 sides

9. 

(regular) octagon — 8 vertices, 8 sides

Practice

Solve. Show your work.

1. The trip by way of the tunnel is 44.9 km. By way of the bridge it is 57.3 km. How much shorter is the tunnel route? 12.4 km

2. Claire wants to divide her gift of $47.22 equally among 6 children. How much will each receive? $7.87

3. In their mail-order business the Buffens have mailed out 375 catalogues each week for 7 weeks. How many catalogues is this?
2625

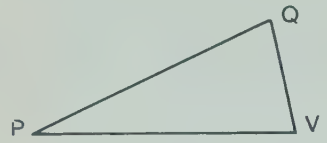
4. Marie-Louise borrowed $35 from her father. She repaid $7.50 in July and $11.35 in August. How much does she still owe?
$16.15

NAME

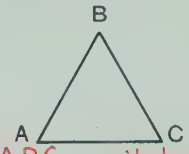
SPM6/U9/180-181

Triangles

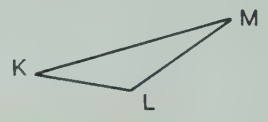
Name each triangle. Tell whether it is equilateral, isosceles, or scalene.

1. 

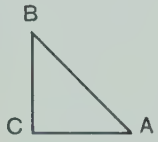
△PQV, isosceles

2. 

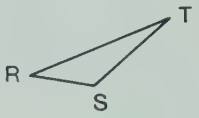
△ABC, equilateral

3. 

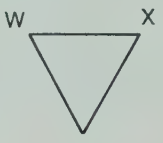
△KLM, scalene

4. 

△ABC, isosceles

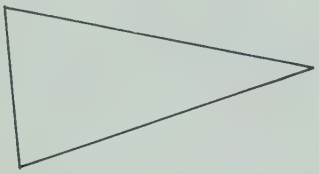
5. 

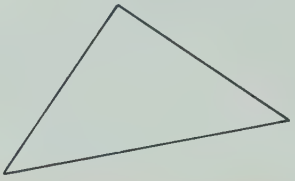
△RST, scalene

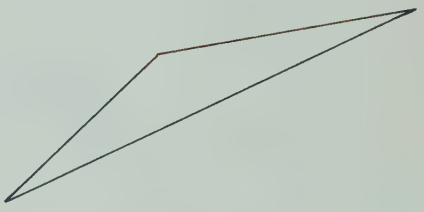
6. 

△WXY, equilateral

Measure the angles of each triangle with a protractor.
Tell whether the triangle is equilateral, isosceles, or scalene.

7. 
75°, 75°, 30°, isosceles

8. 
45°, 45°, 90°, isosceles

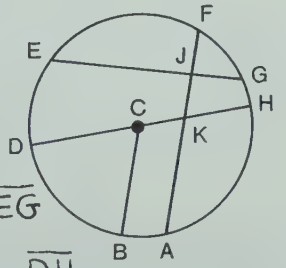
9. 
145°, 20°, 15°, scalene

SPM6/U9/182-183

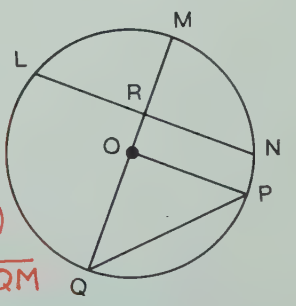
Circles

For the circle, name

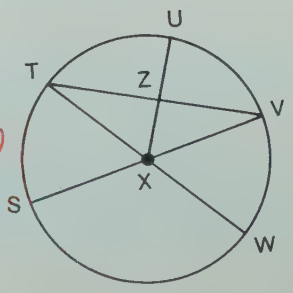
1. the centre. C
2. a diameter. $\overline{DH}$
3. a radius. $\overline{CB}$
4. two chords. $\overline{AF}$, $\overline{EG}$
5. a line of symmetry. $\overline{DH}$



6. the centre. O
7. a diameter. $\overline{QM}$
8. a radius. $\overline{OQ}$ (or $\overline{OP}$ or $\overline{OM}$)
9. two chords. $\overline{QP}$, $\overline{LN}$, (or $\overline{QM}$)
10. a line of symmetry. $\overline{QM}$

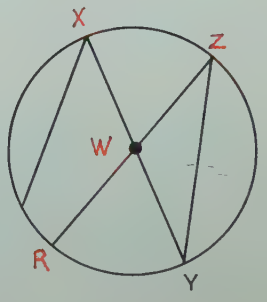


11. the centre. X
12. two diameters. $\overline{TW}$, $\overline{SV}$
13. a radius. $\overline{XS}$ (or $\overline{XT}$, $\overline{XU}$, $\overline{XV}$, $\overline{XW}$)
14. two chords. $\overline{TV}$, $\overline{SV}$ (or $\overline{TW}$)
15. two lines of symmetry. $\overline{SV}$, $\overline{TW}$



Label

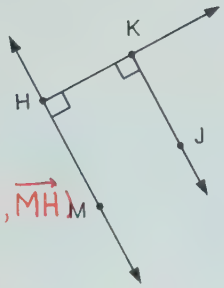
16. centre W.
17. diameter XY.
18. chords YZ and ZR.
19. radius WR.



NAME

Practice

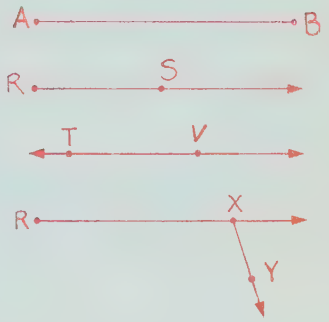
For the picture, name



1. a line. $\overleftrightarrow{HM}$
2. a line segment. $\overline{HK}$ (or $\overline{HM}$ or $\overline{KJ}$)
3. a ray. $\overrightarrow{HK}$ (or $\overrightarrow{KJ}$, $\overrightarrow{HM}$, $\overrightarrow{MH}$)
4. two parallel rays. $\overrightarrow{HM}, \overrightarrow{KJ}$
5. two perpendicular rays. $\overrightarrow{HM}, \overrightarrow{HK}$, (or $\overrightarrow{HK}, \overrightarrow{KJ}$)

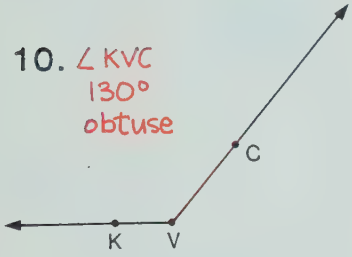
Draw and Label.

6. $\overline{AB}$
7. $\overrightarrow{RS}$
8. $\overleftrightarrow{TV}$
9. $\overrightarrow{RX}$ and $\overrightarrow{XY}$

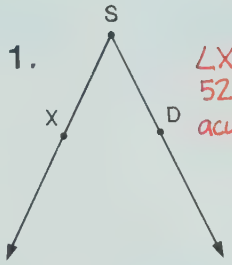


Name each angle. Measure the angle. Tell whether it is acute, right, or obtuse.

10. $\angle KVC$ 130° obtuse



11. $\angle XSD$ 52° acute



Draw an angle for each measurement.

12. 38°

13. 110°

Name each polygon. Draw all of its lines of symmetry. Give the number of vertices and the number of sides of each.

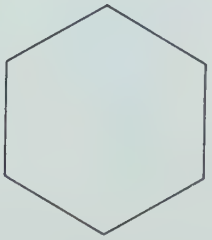
14.

rectangle

4 vertices

4 sides

15.



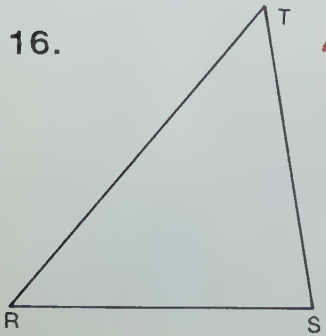
(regular) hexagon

6 vertices

6 sides

Name the triangle. Tell whether it is equilateral, isosceles, or scalene. Measure its angles.

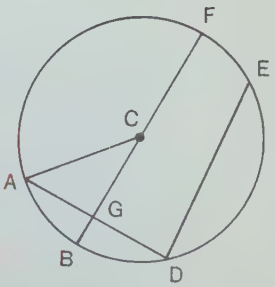
16.



△RST
isosceles
50°, 80°, 50°

For the circle, name

17. the centre. C
18. a diameter. $\overline{BF}$
19. a radius. $\overline{CB}$ (or $\overline{CA}$, $\overline{CF}$)
20. two chords. $\overline{AD}$, $\overline{DE}$ (or $\overline{BF}$)
21. a line of symmetry. $\overline{BF}$



NAME

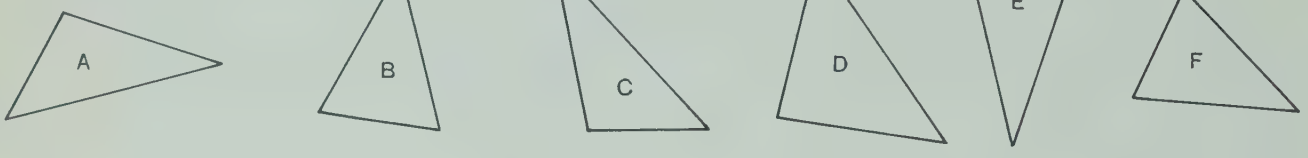
SPM6/U9/184-185

Congruent Shapes

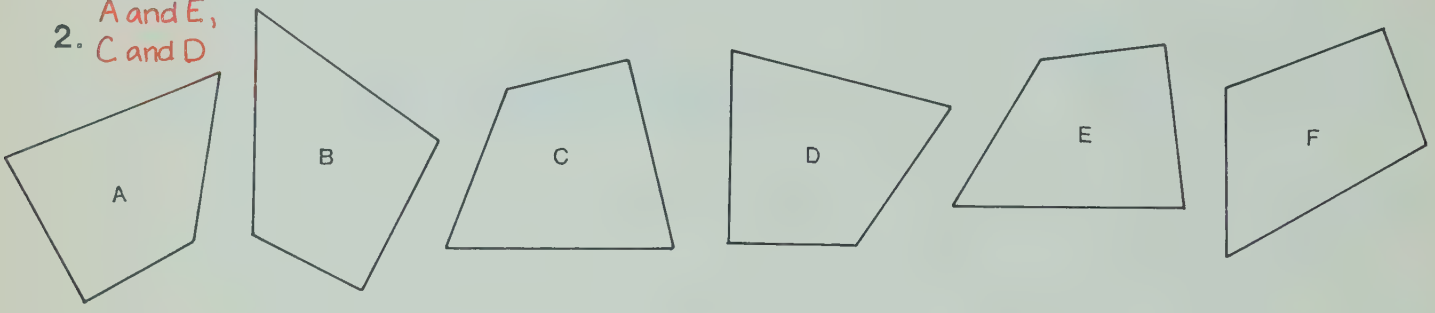
Use tracing paper. Find two pairs of congruent shapes.

1. the same size and shape

A and C, B and F

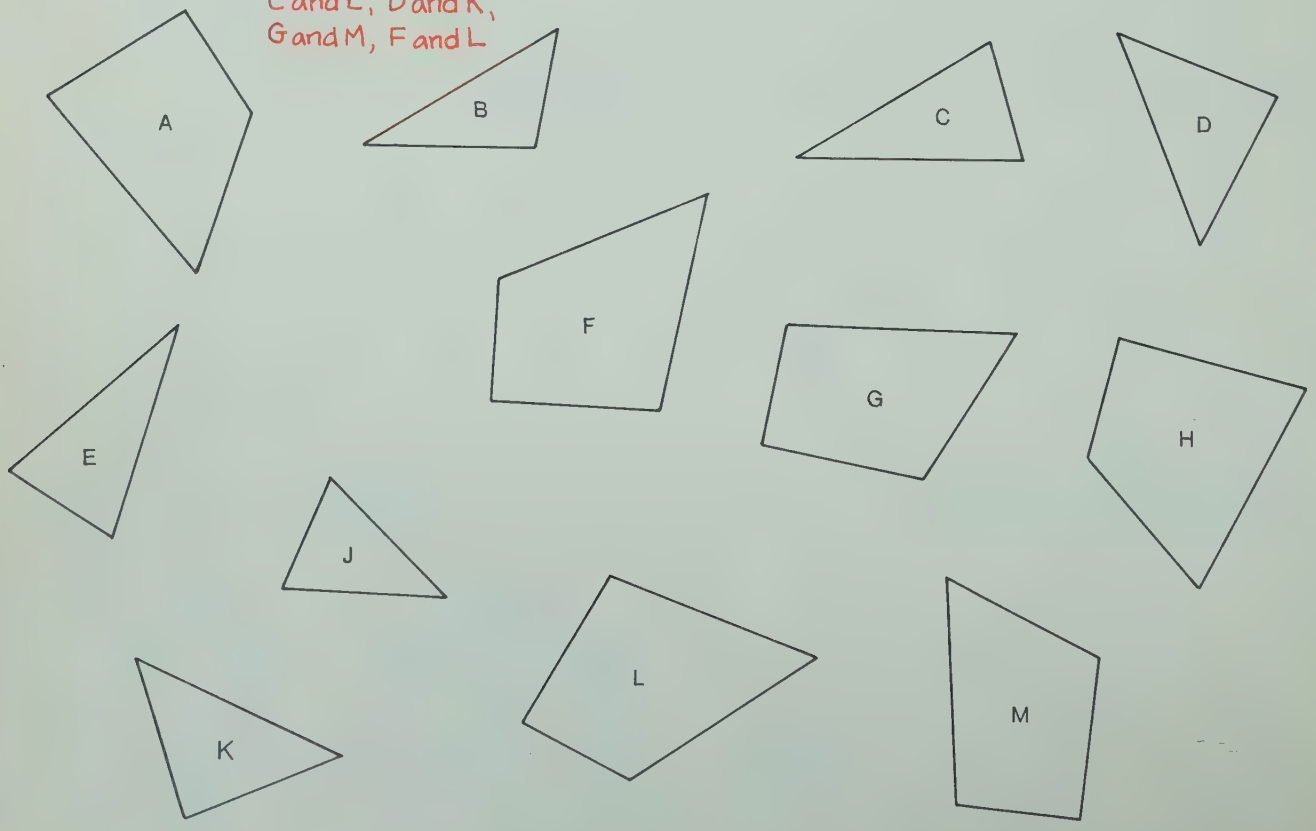


2. A and E, C and D



Find four pairs of congruent shapes.

3. C and E, D and K, G and M, F and L



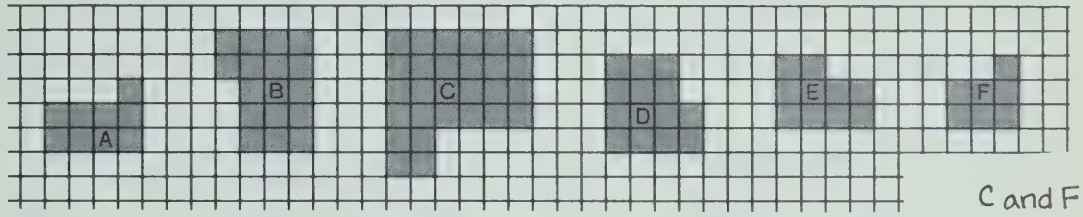
NAME

SPM6/U9/186-187

Similar Shapes

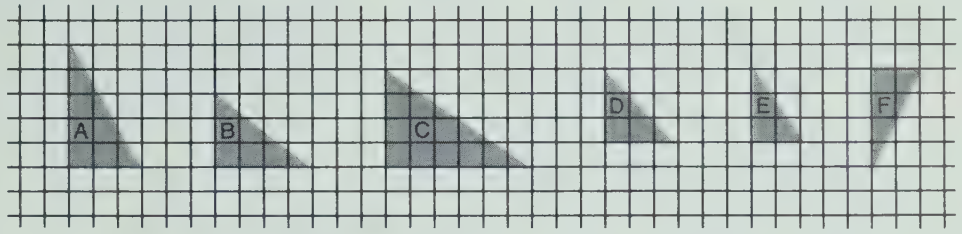
Which two shapes are similar?

1. the same shape



C and F

2.

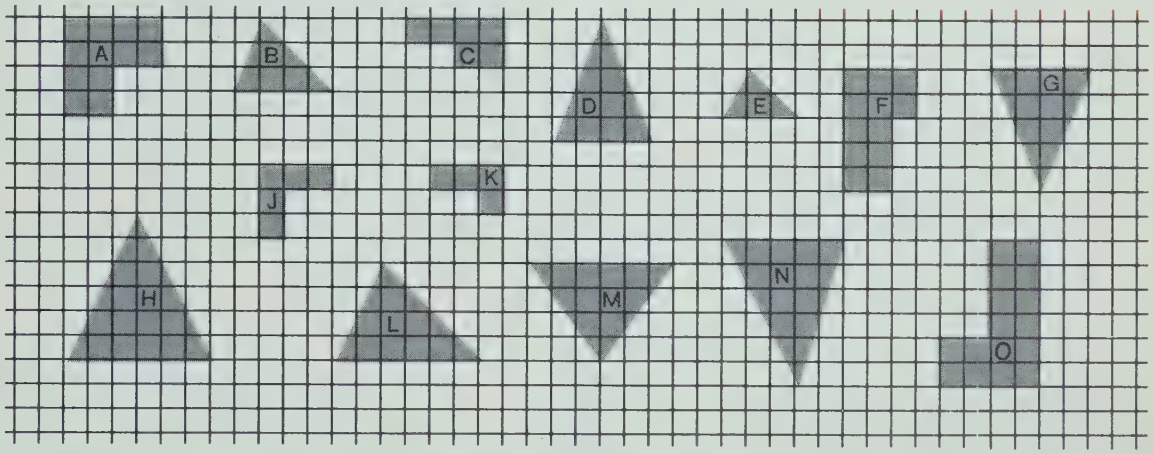


C and E

Find three pairs of similar shapes.

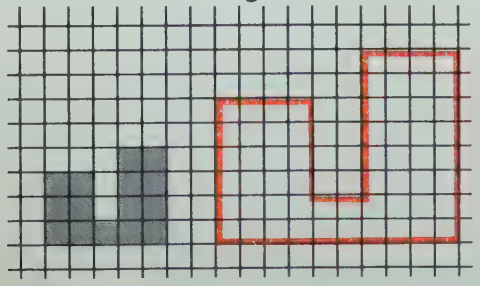
E and L, K and O, G and H

3.

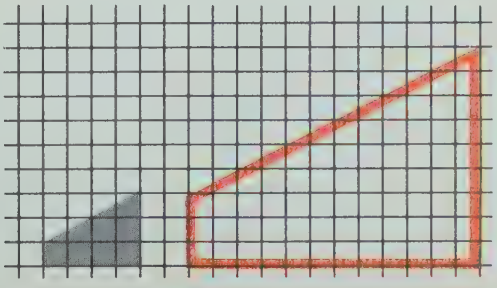


For each shape, draw a similar shape with each side

4. two times as long.



5. three times as long.



NAME

Scale Drawings

Find the real length of each of the following.
Use a centimetre ruler with the scale drawing.

1. wall A in the living room

   4 x 2.5 = 10

   Wall A is 10 m long.

2. wall B in the living room

   8.75 m

Scale: 1 cm to 2.5 m

3. the dimensions of the kitchen 6.25 m by 5 m

4. the dimensions of the bathroom 2.5 m by 2.5 m

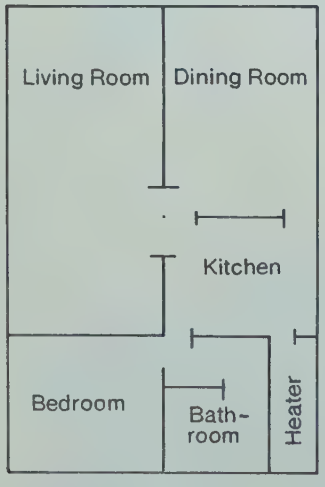
5. How much longer than bedroom 2 is bedroom 1? 1.25 m

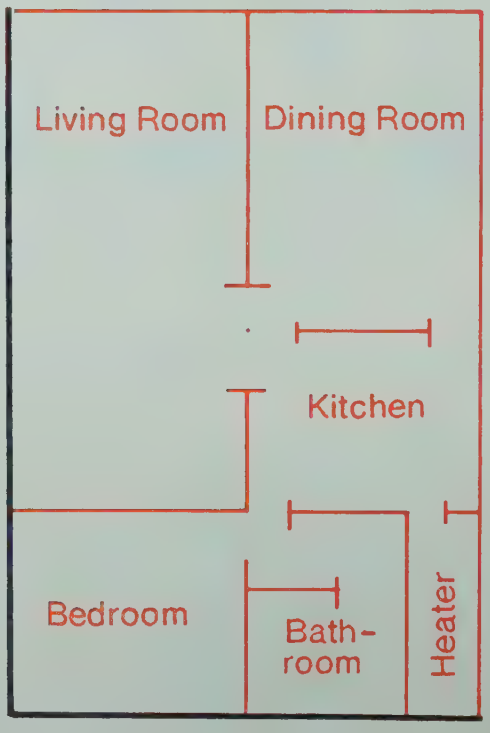
6. What are the dimensions of the closet in bedroom 2? 2.5 m by 1 m

7. How much floor space is allowed for the heater? about 4.7 m^2

8. What is the area of the kitchen? 31.25 m^2

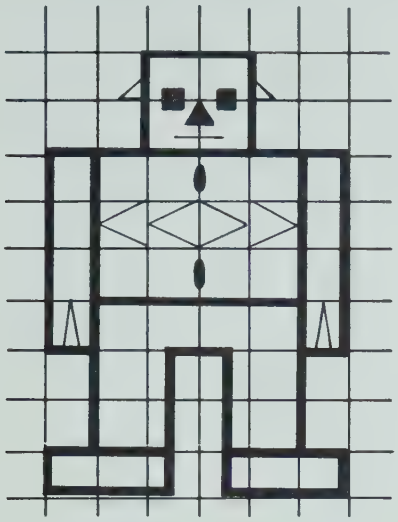
9. Make a scale drawing of this floor plan so that lengths are 1.5 times as large as those shown here.



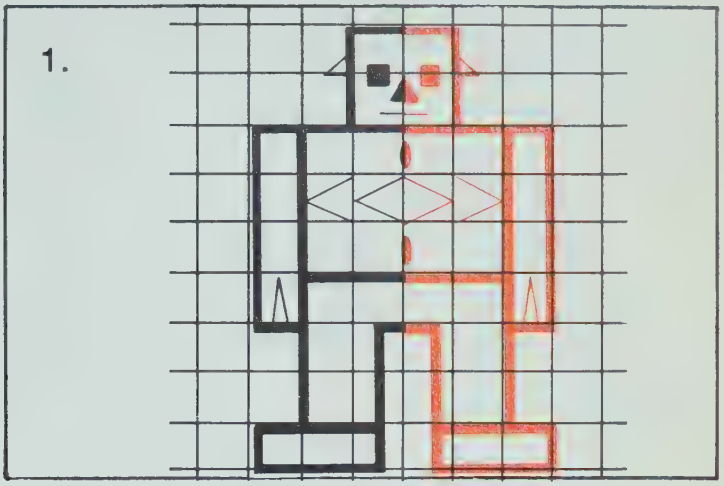


Copying Pictures Using Grids

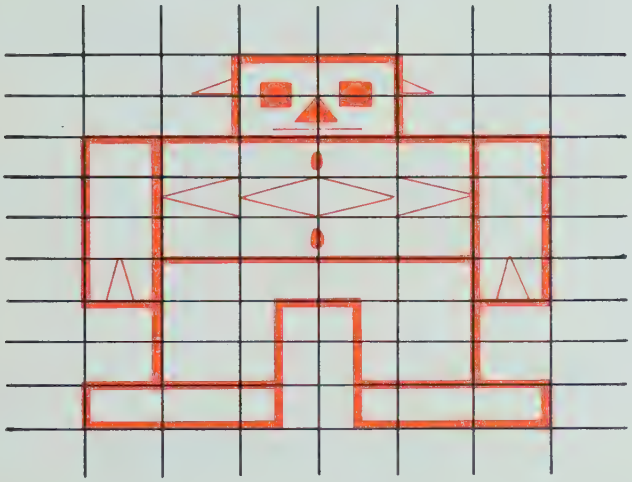
Copy this picture on each grid.



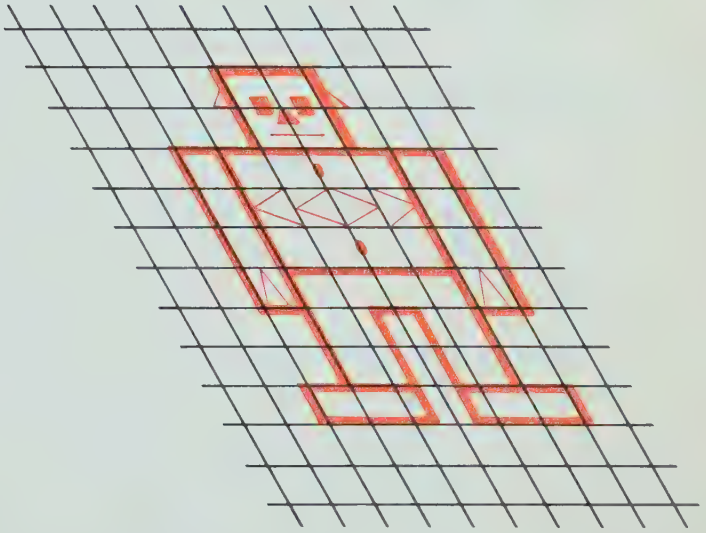
1.



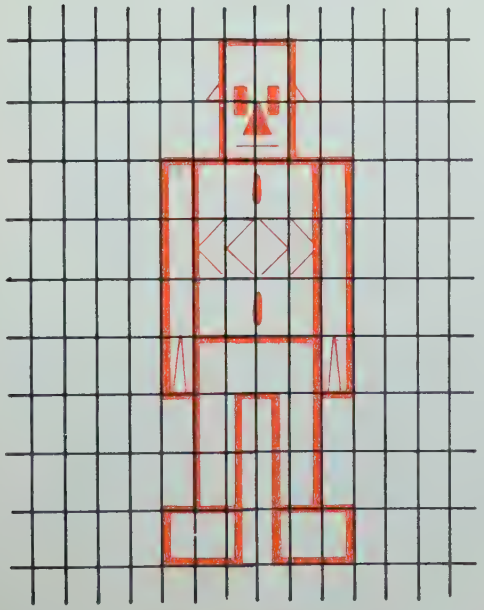
2.



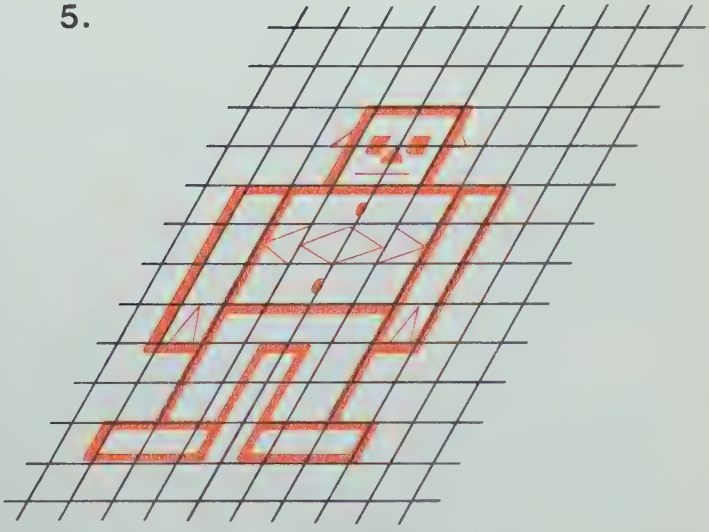
3.



4.



5.



NAME

SPM6/U9/192-193

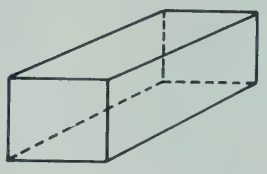
Solid Shapes

For each solid shape, give the number of vertices, the number of edges, and the number of faces. Give the shapes of the faces.

1. hexagonal pyramid

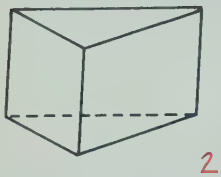
7 vertices
12 edges
7 faces
1 hexagon, 6 triangles

2. rectangular prism



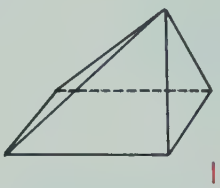
8 vertices
12 edges
6 faces
6 rectangles

3. triangular prism



6 vertices
9 edges
5 faces
2 triangles, 3 rectangles

4. rectangular pyramid

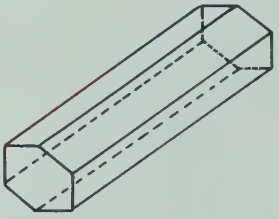


5 vertices
8 edges
5 faces
1 rectangle, 4 triangles

5. pentagonal pyramid

6 vertices
10 edges
6 faces
1 pentagon, 5 triangles

6. hexagonal prism



12 vertices
18 edges
8 faces
2 hexagons, 6 rectangles

7. Use another sheet of paper.
Draw a pattern for each solid shape in Exercises 1-6. Patterns may vary.

Practice

Solve. Show your work.

1. Jamie's family drove 255 km from Jasper to Banff in time for lunch. After lunch they continued toward home, driving 278 km. In all, how far did they travel? 533 km

2. Bella is told to pack the 1152 bolts in 8 boxes, putting an equal number in each of the boxes. How many should go in a box? 144

3. At Paco's school the long jump record is 3.71 m. Paco's best jump is 0.64 m less than the record. How long is Paco's best jump? 3.07m

4. The Sullivans gave 12 sixth-grade girls tickets to the gymnastics meet. The tickets cost $3.75 each. What did all 12 tickets cost? $45.00

NAME _____

Practice

Perform the indicated operation.

1. $\begin{array}{r} 27\,409 \\ 8\,663 \\ +\ 5\,105 \\ \hline 41\,177 \end{array}$

2. $\begin{array}{r} 7003 \\ -\ 1846 \\ \hline 5157 \end{array}$

3. $\begin{array}{r} 7.32 \\ \times\ 4.8 \\ \hline 35.136 \end{array}$

4. $16\overline{)4893}$ = 305.8125 or 305 R13

5. $6\overline{)17.34}$ = 2.89

6. $\begin{array}{r} \$18.79 \\ -\ 7.88 \\ \hline \$10.91 \end{array}$

7. $\begin{array}{r} 4.237 \\ 0.46 \\ +\ 0.8 \\ \hline 5.497 \end{array}$

8. $\begin{array}{r} 207 \\ \times 401 \\ \hline 83\,007 \end{array}$

9. $20\overline{)8280}$ = 414

10. $\begin{array}{r} \$74.61 \\ \times\ 8 \\ \hline \$596.88 \end{array}$

11. $1879.8 \div 241$ = 7.8

12. 5.9×2.3 = 13.57

13. $1.516 - 0.71$ = 0.806

14. $\$15 - \$9.64$ = \$5.36

15. $8717 + 291 + 100$ = 9108

16. $\$4.35 \times 12$ = \$52.20

Solve. Show your work.

17. Kikki rolls the can for one revolution. She measures that it moves exactly 27.3 cm. How far will it move if she rolls it for 3 revolutions. 81.9 cm

18. Kikki's bother takes a different can and rolls it for 15 revolutions. It moves 279 cm. How far does it move each time it is rolled? 18.6 cm

19. This year's fund raising for the ballet earned \$1208. Last year the fund raised \$456 less. How much was raised last year? \$752

20. The large tank holds 120 000 L of oil. The 2 smaller ones each hold 85 000 L. Together, how much do the 3 tanks hold? 290 000 L

21. Billy measured the four angles of the quadrilateral. He found they were 51°, 108°, 85°, and 116°. What was the total measure of the four angles? 360°

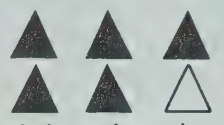
22. The 17 employees totalled 3604 h of work. They each worked the same number of hours. How many hours would that be? 212 h

NAME

SPM6/U10/198-199

Writing Fractions

Write a fraction to complete each sentence.

1.  $\frac{5}{6}$ of the triangles are shaded.

2. $\frac{4}{5}$ of the cones have ice cream.

3. $\frac{7}{10}$ of the boxes have dots.

4. $\frac{5}{8}$ of the flowers have petals.

5. $\frac{7}{12}$ of the shapes are polygons.

6. CANADA $\frac{3}{6}$ of the letters are vowels.

7. $\frac{2}{3}$ of the polygons are hexagons.

8. $\frac{8}{9}$ of the heads have hats.

9. $\frac{4}{10}$ of the glasses have water.

Write a sentence using a fraction for each of these. Use other paper.

10. 9 magic markers work out of a dozen. $\frac{9}{12}$

11. Out of 20 children, 14 play dodge ball. $\frac{14}{20}$

12. Melissa took 15 shots and made 7 baskets. $\frac{7}{15}$

SPM6/U10/200-201

Multiplying to Find Equivalent Fractions

Write four fractions that are equivalent to each of these.

1. $\frac{2}{3}$ (2×2) $\frac{4}{6}$, (2×3) $\frac{6}{9}$, (2×4) $\frac{8}{12}$, (2×5) $\frac{10}{15}$ (3×2, 3×3, 3×4, 3×5)

2. $\frac{3}{8}$ (3×2) $\frac{6}{16}$, (3×3) $\frac{9}{24}$, $\frac{12}{32}$, $\frac{15}{40}$ (8×2, 8×3)

3. $\frac{3}{4}$ $\frac{6}{8}$, $\frac{9}{12}$, $\frac{12}{16}$, $\frac{15}{20}$

4. $\frac{5}{6}$ $\frac{10}{12}$, $\frac{15}{18}$, $\frac{20}{24}$, $\frac{25}{30}$

5. $\frac{2}{9}$ $\frac{4}{18}$, $\frac{6}{27}$, $\frac{8}{36}$, $\frac{10}{45}$

6. $\frac{1}{2}$ $\frac{2}{4}$, $\frac{3}{6}$, $\frac{4}{8}$, $\frac{5}{10}$

7. $\frac{1}{3}$ $\frac{2}{6}$, $\frac{3}{9}$, $\frac{4}{12}$, $\frac{5}{15}$

8. $\frac{3}{5}$ $\frac{6}{10}$, $\frac{9}{15}$, $\frac{12}{20}$, $\frac{15}{25}$

9. $\frac{7}{8}$ $\frac{14}{16}$, $\frac{21}{24}$, $\frac{28}{32}$, $\frac{35}{40}$

10. $\frac{4}{7}$ $\frac{8}{14}$, $\frac{12}{21}$, $\frac{16}{28}$, $\frac{20}{35}$

11. $\frac{1}{6}$ $\frac{2}{12}$, $\frac{3}{18}$, $\frac{4}{24}$, $\frac{5}{30}$

12. $\frac{3}{10}$ $\frac{6}{20}$, $\frac{9}{30}$, $\frac{12}{40}$, $\frac{15}{50}$

NAME

SPM6/U10/202-203

Dividing to Find Equivalent Fractions

Divide the numerator and the denominator by a common factor to get an equivalent fraction. Answers shown are in lowest terms.

1. $\frac{14}{21} = \frac{2}{3}$ (÷7, ÷7)
2. $\frac{6}{12} = \frac{1}{2}$ (÷6, ÷6)
3. $\frac{16}{24} = \frac{2}{3}$
4. $\frac{28}{35} = \frac{4}{5}$
5. $\frac{18}{27} = \frac{2}{3}$
6. $\frac{10}{25} = \frac{2}{5}$
7. $\frac{9}{36} = \frac{1}{4}$
8. $\frac{14}{42} = \frac{1}{3}$
9. $\frac{15}{18} = \frac{5}{6}$
10. $\frac{24}{48} = \frac{1}{2}$
11. $\frac{36}{63} = \frac{4}{7}$
12. $\frac{12}{15} = \frac{4}{5}$
13. $\frac{12}{32} = \frac{3}{8}$
14. $\frac{30}{54} = \frac{5}{9}$
15. $\frac{21}{49} = \frac{3}{7}$

16. Ring the fractions you found in each of the above exercises that are in lowest terms.

SPM6/U10/204-205

Cross Products

Find the cross products. Are the fractions equivalent?

1. $\frac{12}{15}, \frac{3}{4}$ — $15 \times 3 = 45$; $12 \times 4 = 48$ — no
2. $\frac{2}{5}, \frac{12}{30}$ — $5 \times 12 = 60$; $2 \times 30 = 60$ — yes
3. $\frac{8}{10}, \frac{16}{18}$ — 160; 144 — no

Use cross products to find the missing term.

4. $\frac{8}{12} = \frac{6}{9}$ — $12 \times ? = 8 \times 9$; $12 \times 6 = 72$
5. $\frac{4}{10} = \frac{14}{35}$ — $4 \times ? = 10 \times 14$
6. $\frac{15}{24} = \frac{10}{16}$

Find the cross products. Are the fractions equivalent?

7. $\frac{8}{14}, \frac{12}{21}$ — 168; 168 — yes
8. $\frac{6}{16}, \frac{12}{27}$ — 192; 162 — no
9. $\frac{20}{32}, \frac{15}{24}$ — 480; 480 — yes

Use cross products to find the missing term.

10. $\frac{3}{9} = \frac{5}{15}$
11. $\frac{14}{20} = \frac{35}{50}$
12. $\frac{15}{18} = \frac{20}{24}$
13. $\frac{20}{25} = \frac{24}{30}$
14. $\frac{9}{12} = \frac{15}{20}$
15. $\frac{8}{10} = \frac{12}{15}$

NAME

Practice

Write a fraction to show how many of the candles are lit.

1. $\frac{3}{5}$

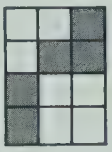
2. $\frac{4}{8}$ (or $\frac{1}{2}$)

3. $\frac{5}{6}$

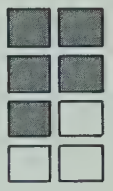
4. $\frac{7}{12}$

Write the fraction to show how much is shaded.

5. $\frac{1}{6}$

6.  $\frac{5}{12}$

7. $\frac{2}{3}$

8.  $\frac{5}{8}$

Write four equivalent fractions for each of these.

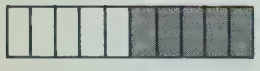
9. $\frac{2}{7}$ $\frac{4}{14}, \frac{6}{21}, \frac{8}{28}, \frac{10}{35}$

10. $\frac{4}{9}$ $\frac{8}{18}, \frac{12}{27}, \frac{16}{36}, \frac{20}{45}$

11. $\frac{1}{4}$ $\frac{2}{8}, \frac{3}{12}, \frac{4}{16}, \frac{5}{20}$

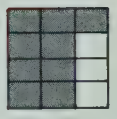
12. $\frac{5}{8}$ $\frac{10}{16}, \frac{15}{24}, \frac{20}{32}, \frac{25}{40}$

Write two equivalent fractions for each picture.

13.  $\frac{5}{10}, \frac{1}{2}$

14. $\frac{4}{6}, \frac{2}{3}$

15. $\frac{6}{8}, \frac{3}{4}$

16.  $\frac{9}{12}, \frac{3}{4}$

Write the fraction in lowest terms that is equivalent to each of these.

17. $\frac{15}{20}$ $\frac{3}{4}$

18. $\frac{12}{30}$ $\frac{2}{5}$

19. $\frac{8}{12}$ $\frac{2}{3}$

20. $\frac{27}{63}$ $\frac{3}{7}$

21. $\frac{28}{36}$ $\frac{7}{9}$

22. $\frac{25}{40}$ $\frac{5}{8}$

23. $\frac{20}{25}$ $\frac{4}{5}$

24. $\frac{42}{56}$ $\frac{3}{4}$

Find the cross products. Are the fractions equivalent?

25. $\frac{4}{9}, \frac{16}{36}$ $144=144$ yes

26. $\frac{20}{50}, \frac{12}{30}$ $600=600$ yes

27. $\frac{12}{18}, \frac{18}{27}$ $324=324$ yes

28. $\frac{16}{20}, \frac{32}{45}$ $720 \neq 640$ no

Use cross products to find the missing term.

29. $\frac{6}{12} = \frac{7}{14}$

30. $\frac{12}{16} = \frac{27}{36}$

31. $\frac{9}{15} = \frac{21}{35}$

32. $\frac{4}{10} = \frac{14}{35}$

33. $\frac{48}{18} = \frac{40}{15}$

34. $\frac{10}{15} = \frac{8}{12}$

35. $\frac{21}{56} = \frac{15}{40}$

36. $\frac{45}{54} = \frac{35}{42}$

NAME

SPM6/U10/206-207

Changing to Improper Fractions

Write each as an improper fraction.

1. $4\frac{1}{3}$ $\frac{13}{3}$	2. $10\frac{2}{5}$ $\frac{52}{5}$	3. $6\frac{2}{3}$ $\frac{20}{3}$	4. $7\frac{7}{9}$ $\frac{70}{9}$
4 x 3 thirds + 1 13 thirds	10 x 5 fifths + 2		

5. $8\frac{3}{4}$ $\frac{35}{4}$	6. $5\frac{1}{4}$ $\frac{21}{4}$	7. $5\frac{4}{7}$ $\frac{39}{7}$	8. $4\frac{1}{6}$ $\frac{25}{6}$	9. $3\frac{5}{8}$ $\frac{29}{8}$
10. $9\frac{4}{9}$ $\frac{85}{9}$	11. $2\frac{1}{2}$ $\frac{5}{2}$	12. $9\frac{3}{5}$ $\frac{48}{3}$	13. $4\frac{5}{7}$ $\frac{33}{7}$	14. $2\frac{3}{10}$ $\frac{23}{10}$
15. $5\frac{7}{12}$ $\frac{67}{12}$	16. $6\frac{1}{5}$ $\frac{31}{5}$	17. $10\frac{3}{8}$ $\frac{83}{8}$	18. $5\frac{5}{6}$ $\frac{35}{6}$	19. $12\frac{4}{5}$ $\frac{64}{5}$

Complete.

20. $5 = \frac{20}{4}$	21. $9 = \frac{27}{3}$	22. $6 = \frac{60}{10}$	23. $7 = \frac{14}{2}$

SPM6/U10/208-209

Changing Improper Fractions

Write each improper fraction as a number in mixed form or as a whole number.

1. $\frac{21}{4}$ $5\frac{1}{4}$	2. $\frac{33}{7}$ $4\frac{5}{7}$	3. $\frac{29}{4}$ $7\frac{1}{4}$	4. $\frac{80}{9}$ $8\frac{8}{9}$	5. $\frac{56}{8}$ 7
$4\overline{)21}$ 5 R 1	$7\overline{)33}$ 4 R 5			

6. $\frac{25}{6}$ $4\frac{1}{6}$	7. $\frac{43}{9}$ $4\frac{7}{9}$	8. $\frac{21}{3}$ 7	9. $\frac{58}{7}$ $8\frac{2}{7}$	10. $\frac{17}{8}$ $2\frac{1}{8}$
11. $\frac{14}{3}$ $4\frac{2}{3}$	12. $\frac{110}{10}$ 11	13. $\frac{150}{12}$ $12\frac{1}{2}$	14. $\frac{44}{5}$ $8\frac{4}{5}$	15. $\frac{81}{9}$ 9
16. $\frac{17}{2}$ $8\frac{1}{2}$	17. $\frac{35}{5}$ 7	18. $\frac{80}{12}$ $6\frac{2}{3}$	19. $\frac{50}{6}$ $8\frac{1}{3}$	20. $\frac{80}{3}$ $26\frac{2}{3}$

NAME

SPM6/U10/210-211

Finding Like Denominators

For each pair, find equivalent fractions with like denominators.

1. $\frac{3}{8}, \frac{5}{6}$ $\frac{9}{24}, \frac{20}{24}$

Multiples of 8 and 6 are
8, 16, 24
6, 12, 18, 24

2. $\frac{2}{3}, \frac{4}{5}$ $\frac{10}{15}, \frac{12}{15}$

Multiples of 3 and 5 are
3, 6, 9, 12, 15
5, 10, 15

3. $\frac{3}{4}, \frac{7}{10}$ $\frac{15}{20}, \frac{14}{20}$

4. $\frac{1}{6}, \frac{4}{9}$ $\frac{3}{18}, \frac{8}{18}$

5. $\frac{5}{6}, \frac{3}{10}$ $\frac{25}{30}, \frac{9}{30}$

6. $\frac{1}{2}, \frac{3}{4}$ $\frac{2}{4}, \frac{3}{4}$

7. $\frac{5}{8}, \frac{1}{10}$ $\frac{25}{40}, \frac{4}{40}$

8. $\frac{1}{2}, \frac{2}{3}$ $\frac{3}{6}, \frac{4}{6}$

9. $\frac{1}{3}, \frac{5}{12}$ $\frac{4}{12}, \frac{5}{12}$

10. $\frac{3}{6}, \frac{9}{12}$ $\frac{6}{12}, \frac{9}{12}$

11. $\frac{3}{4}, \frac{5}{6}$ $\frac{9}{12}, \frac{10}{12}$

12. $\frac{7}{9}, \frac{7}{12}$ $\frac{28}{36}, \frac{21}{36}$

13. $\frac{1}{4}, \frac{6}{7}$ $\frac{7}{28}, \frac{24}{28}$

14. $\frac{5}{12}, \frac{7}{10}$ $\frac{25}{60}, \frac{42}{60}$

15. $\frac{5}{6}, \frac{5}{8}$ $\frac{20}{24}, \frac{15}{24}$

SPM6/U10/212-213

Comparing Fractions

Use >, <, or = to make true statements.

1. $\frac{5}{6} > \frac{3}{4}$

$\frac{10}{12} > \frac{9}{12}$

2. $\frac{1}{4} < \frac{1}{3}$

$\frac{3}{12} < \frac{4}{12}$

3. $\frac{2}{3} < \frac{7}{8}$

4. $\frac{1}{6} < \frac{3}{8}$

5. $\frac{2}{3} > \frac{4}{7}$

6. $\frac{9}{12} = \frac{6}{8}$

7. $\frac{2}{5} > \frac{3}{8}$

8. $\frac{5}{6} < \frac{7}{8}$

9. $\frac{5}{8} < \frac{7}{10}$

10. $\frac{5}{6} < \frac{6}{7}$

11. $\frac{3}{8} < \frac{5}{12}$

12. $\frac{4}{7} < \frac{3}{5}$

13. $\frac{7}{10} > \frac{7}{12}$

14. $\frac{3}{4} = \frac{6}{8}$

15. $\frac{2}{7} > \frac{1}{4}$

16. $\frac{7}{12} < \frac{5}{8}$

17. $6\frac{5}{9} < 6\frac{7}{12}$

18. $3\frac{7}{10} < 3\frac{3}{4}$

19. $2\frac{4}{5} > 2\frac{7}{9}$

20. $8\frac{2}{3} = 8\frac{8}{12}$

NAME

Practice

Perform the indicated operation.

1. 6014 − 783 = 5231

2. $42.78 × 3 = $128.34

3. 2614 + 5320 = 7934

4. 739 × 28 = 20 692

5. 32)12 634 = 394 R26 or 394.8125

6. 5.9 × 3.4 = 20.06

7. $2784 + 361 + 4029 = $7174

8. 4)1.728 = 0.432

9. 5.38 × 0.27 = 1.4526

10. $16.83 − 7.95 = $ 8.88

11. 0.13 x 0.2 = 0.026

12. $487 x 6 = $2922

13. 15.813 − 1.4 = 14.413

14. 289.8 ÷ 23 = 12.6

15. (286 − 143) x 27 = 3861

16. 1.714 + 2.8 + 0.95 = 5.464

Solve. Show your work.

17. To prepare for his radio show, Bruce times the different tapes. One runs 17 min, a second runs 9 min, and a third and fourth run 6 min each. What is the total time for the four tapes? 38 min

18. In the cheese factory warehouse, there are 4750 large wheels of cheese. Each wheel has a mass of 3.8 kg. What is the total mass of the cheese in the warehouse? 18 050 kg

19. Claudette heated the mixture in her laboratory to 78.5°C. Then she allowed it to cool 16.9°C. At what temperature was it then? 61.6°C

20. The truck is loaded with 32 wooden crates of equal mass. The mass of the load is 48 t. How heavy is each crate? 1.5 t

21. The restaurant paid $17.28 for 8 dozen doughnuts. What was its cost per doughnut? $0.18 or 18¢

22. The big jet flies 890 km each hour. On a 3.5 h trip, how many kilometres will it fly? 3115 km

NAME

SPM6/U11/216-217

Adding and Subtracting Fractions with Like Denominators

Perform the indicated operation.

1. $7\frac{3}{5} + 2\frac{1}{5} = 9\frac{4}{5}$	2. $3\frac{4}{7} - 2\frac{1}{7} = 1\frac{3}{7}$	3. $2\frac{1}{8} + 3\frac{4}{8} = 5\frac{5}{8}$	4. $9\frac{7}{10} - 6\frac{3}{10} = 3\frac{2}{5}$	5. $5\frac{7}{10} + 9\frac{2}{10} = 14\frac{9}{10}$	6. $\frac{3}{4} - \frac{2}{4} = \frac{1}{4}$
7. $\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$	8. $9\frac{1}{3} + 2 = 11\frac{1}{3}$	9. $3\frac{2}{5} - 2\frac{1}{5} = 1\frac{1}{5}$	10. $6\frac{4}{9} + 4\frac{4}{9} = 10\frac{8}{9}$	11. $\frac{7}{8} - \frac{2}{8} = \frac{5}{8}$	12. $7\frac{4}{9} - 2 = 5\frac{4}{9}$
13. $12\frac{9}{10} - 5\frac{6}{10} = 7\frac{3}{10}$	14. $1\frac{5}{8} + 3\frac{2}{8} = 4\frac{7}{8}$	15. $11\frac{5}{9} - 2\frac{3}{9} = 9\frac{2}{9}$	16. $3\frac{2}{5} + 6\frac{1}{5} = 9\frac{3}{5}$	17. $7 + 3\frac{3}{4} = 10\frac{3}{4}$	18. $5\frac{5}{6} - 1\frac{1}{6} = 4\frac{2}{3}$

Practice

Solve. Show your work.

1. Ellie is designing a patchwork quilt. It will have 13 rows. Each row will have 9 squares. How many squares will there be in the quilt? 117

2. Ellie will have 85 of the squares for the quilt made by others. She will pay $0.35 per square for each of these. How much will this cost? $29.75

3. Ellie estimates it will take 5 min per square to stitch together the 117 squares in her quilt. How long will this be in hours and minutes? 9 h 45 min

4. Last year Ellie made $485 selling quilts, $650 doing dressmaking, and $235 as a mother's helper. What was her total income last year? $1370

5. Julius was paid $26.95 for 7 h of work. How much did he earn for each hour? $3.85

6. Jimmy's height is 2.4 cm greater than the last time he was measured. Jimmy is 80.1 cm tall. How tall was he before? 77.7 cm

NAME

SPM6/U11/218-219

Adding Fractions with Unlike Denominators

Add. Show each sum in lowest terms.

1. $\frac{1}{4}$ $\frac{3}{12}$
   $\frac{1}{3}$ $\frac{4}{12}$
   $\frac{7}{12}$

2. $\frac{1}{6}$ $\frac{1}{6}$
   $\frac{1}{3}$ $\frac{2}{6}$
   $\frac{3}{6} = \frac{1}{2}$

3. $\frac{1}{4}$
   $\frac{1}{2}$
   $\frac{3}{4}$

4. $\frac{5}{12} + \frac{1}{4}$ $\frac{2}{3}$

5. $\frac{2}{3}$
   $\frac{1}{6}$
   $\frac{5}{6}$

6. $\frac{3}{10}$
   $\frac{1}{2}$
   $\frac{4}{5}$

7. $\frac{3}{8}$
   $\frac{1}{4}$
   $\frac{5}{8}$

8. $\frac{1}{6}$
   $\frac{4}{9}$
   $\frac{11}{18}$

9. $\frac{1}{6}$
   $\frac{3}{8}$
   $\frac{13}{24}$

10. $\frac{1}{2} + \frac{2}{5}$ $\frac{9}{10}$

11. $\frac{3}{4} + \frac{1}{8}$ $\frac{7}{8}$

12. $\frac{3}{4} + \frac{1}{12}$ $\frac{5}{6}$

13. $\frac{3}{8} + \frac{5}{12}$ $\frac{19}{24}$

SPM6/U11/220-221

Adding Fractions, Regrouping

Add. Regroup the sum if it shows an improper fraction.

1. $2\frac{3}{4}$ $2\frac{6}{8}$
   $1\frac{3}{8}$ $1\frac{3}{8}$
   $3\frac{9}{8} = 4\frac{1}{8}$

2. $4\frac{1}{3}$ $4\frac{2}{6}$
   $2\frac{5}{6}$ $2\frac{5}{6}$
   $6\frac{7}{6} = 7\frac{1}{6}$

3. $5\frac{5}{6}$
   $2\frac{5}{8}$
   $8\frac{11}{24}$

4. $3\frac{7}{10} + 7\frac{7}{10}$ $11\frac{2}{5}$

5. $1\frac{2}{3}$
   $6\frac{5}{6}$
   $8\frac{1}{2}$

6. $3\frac{8}{9}$
   $5\frac{1}{6}$
   $9\frac{1}{18}$

7. $\frac{1}{2}$
   $\frac{2}{3}$
   $1\frac{1}{6}$

8. $3\frac{3}{4}$
   $3\frac{3}{4}$
   $7\frac{1}{2}$

9. $2\frac{3}{8}$
   $4\frac{7}{12}$
   $6\frac{23}{24}$

10. $\frac{2}{3} + \frac{3}{4}$ $1\frac{5}{12}$

11. $3\frac{4}{5} + 5\frac{7}{10}$ $9\frac{1}{2}$

12. $1\frac{1}{2} + 7\frac{3}{4}$ $9\frac{1}{4}$

13. $3\frac{5}{6} + 1\frac{1}{2}$ $5\frac{1}{3}$

NAME

SPM6/U11/222-223

Subtracting Fractions with Unlike Denominators

Subtract. Show each difference in lowest terms.

1. $\frac{2}{3}$ $\frac{4}{6}$
$\frac{1}{6}$ $\frac{1}{6}$
$\frac{3}{6} = \frac{1}{2}$

2. $\frac{7}{9}$ $\frac{7}{9}$
$\frac{2}{3}$ $\frac{6}{9}$
$\frac{1}{9}$

3. $\frac{3}{5}$
$\frac{3}{10}$
$\frac{3}{10}$

4. $\frac{1}{3} - \frac{1}{12}$ $\frac{1}{4}$

5. $\frac{3}{4}$
$\frac{7}{12}$
$\frac{1}{6}$

6. $\frac{5}{9}$
$\frac{1}{3}$
$\frac{2}{9}$

7. $\frac{5}{6}$
$\frac{1}{2}$
$\frac{1}{3}$

8. $\frac{2}{3}$
$\frac{1}{4}$
$\frac{5}{12}$

9. $\frac{3}{4}$
$\frac{1}{2}$
$\frac{1}{4}$

10. $\frac{3}{8} - \frac{1}{6}$ $\frac{5}{24}$

11. $\frac{3}{4} - \frac{1}{2}$ $\frac{1}{4}$

12. $\frac{7}{9} - \frac{1}{6}$ $\frac{11}{18}$

13. $\frac{1}{2} - \frac{1}{6}$ $\frac{1}{3}$

SPM6/U11/224-225

Subtracting Fractions, Regrouping

Subtract. Add to check.

1. $6\frac{1}{2}$ $6\frac{2}{4}$ $5\frac{6}{4}$
$3\frac{3}{4}$ $3\frac{3}{4}$ $3\frac{3}{4}$
$2\frac{3}{4}$

2. 4 $3\frac{3}{3}$
$2\frac{1}{3}$ $2\frac{1}{3}$
$1\frac{2}{3}$

3. $7\frac{1}{3}$
$5\frac{1}{6}$
$2\frac{1}{6}$

4. $2\frac{1}{2} - \frac{2}{3}$ $1\frac{5}{6}$

5. $8\frac{1}{6}$
$4\frac{2}{3}$
$3\frac{1}{2}$

6. 9
$4\frac{2}{5}$
$4\frac{3}{5}$

7. $2\frac{4}{9}$
$\frac{7}{9}$
$1\frac{2}{3}$

8. $6\frac{1}{2}$
$5\frac{5}{6}$
$\frac{2}{3}$

9. $3\frac{1}{4} - 1\frac{3}{4}$ $1\frac{1}{2}$

10. $5\frac{5}{6} - 4\frac{7}{8}$ $\frac{23}{24}$

11. $10\frac{3}{8} - 3\frac{11}{12}$ $6\frac{11}{24}$

12. $1\frac{1}{4} - \frac{5}{8}$ $\frac{5}{8}$

NAME

Practice

Perform the indicated operation.

1. $6\frac{1}{9} + 3\frac{4}{9}$ → $9\frac{5}{9}$

2. 3.6×2.9 → 10.44

3. $12\overline{)14\,820}$ → 1235

4. $7\frac{3}{4} + 1\frac{1}{4}$ → 9

5. $2486 - 979$ → 1507

6. $7\overline{)959}$ → 137

7. $2.3 + 0.416 + 7.92$ → 10.636

8. $\$42.83 \times 6$ → $\$256.98$

9. $8\frac{3}{10} - 2\frac{4}{5}$ → $5\frac{1}{2}$

10. 406×23 → 9338

11. $8403 - 297$ → 8106

12. $\$16.34 + \$0.87 + \$2.50$ → $\$19.71$

13. 4.28×5.3 → 22.684

Solve. Show your work.

14. The Parthenon in Athens has a rectangular base about 69.5 m long and about 30.8 m wide. What is its area? $2140.6\ m^2$

15. In the pasteurization process, milk is kept at about 62°C for 30 min, then chilled quickly to 10°C. By how many degrees is it cooled in this process? 52°C

16. A certain size container holds 250 kg of grain. How many such containers would be needed to hold 12 460 kg ? 50

17. An oil company agrees to sell the filling station 3000 cans of oil at $0.82 per can. How much will this cost the station? $2460.00

18. A pheasant breeding project raised 1775 young birds this year, 2020 last year, and 1960 the year before that. How many have been raised in the past three years? 5755

19. There were 8 boxes of pectin in the kitchen. The chef used $2\frac{1}{3}$ boxes in making jelly. How many boxes are left? $5\frac{2}{3}$

NAME

SPM6/U11/228-229

Multiplying Fractions

Multiply. Show each product in lowest terms.

1. $\frac{2}{3} \times \frac{1}{2} = \frac{2 \times 1}{3 \times 2}$ $= \frac{2}{6}$ or $\frac{1}{3}$	2. $\frac{2}{5} \times \frac{3}{4} = \frac{2 \times 3}{5 \times 4}$ $= \frac{3}{10}$	3. $\frac{3}{4} \times \frac{4}{7}$ $\frac{3}{7}$	4. $\frac{2}{3} \times \frac{3}{8}$ $\frac{1}{4}$
5. $\frac{1}{3} \times \frac{3}{5}$ $\frac{1}{5}$	6. $\frac{1}{2} \times \frac{3}{4}$ $\frac{3}{8}$	7. $\frac{2}{3} \times \frac{5}{6}$ $\frac{5}{9}$	8. $\frac{2}{5} \times \frac{3}{5}$ $\frac{6}{25}$
9. $\frac{7}{10} \times \frac{1}{2}$ $\frac{7}{20}$	10. $\frac{4}{5} \times \frac{5}{8}$ $\frac{1}{2}$	11. $\frac{5}{6} \times \frac{3}{10}$ $\frac{1}{4}$	12. $\frac{1}{2} \times \frac{1}{2}$ $\frac{1}{4}$
13. $\frac{3}{5} \times \frac{5}{9}$ $\frac{1}{3}$	14. $\frac{1}{4} \times \frac{4}{5}$ $\frac{1}{5}$	15. $\frac{4}{7} \times \frac{3}{8}$ $\frac{3}{14}$	16. $\frac{3}{4} \times \frac{5}{6}$ $\frac{5}{8}$

SPM6/U11/230-231

Multiplying Fractions and Whole Numbers

Multiply.

1. $14 \times \frac{2}{7} = \frac{14}{1} \times \frac{2}{7}$ $= \frac{28}{7}$ or 4	2. $\frac{1}{3} \times 16 = \frac{1}{3} \times \frac{16}{1}$ $= \frac{16}{3}$ or $5\frac{1}{3}$	3. $12 \times \frac{2}{3}$ 8	4. $9 \times \frac{1}{2}$ $\frac{9}{2}$ or $4\frac{1}{2}$
5. $4 \times \frac{2}{3}$ $\frac{8}{3}$ or $2\frac{2}{3}$	6. $\frac{4}{9} \times 24$ $\frac{32}{3}$ or $10\frac{2}{3}$	7. $32 \times \frac{5}{8}$ 20	8. $\frac{7}{12} \times 9$ $\frac{21}{4}$ or $5\frac{1}{4}$
9. $8 \times \frac{3}{5}$ $\frac{24}{5}$ or $4\frac{4}{5}$	10. $\frac{5}{6} \times 18$ 15	11. $\frac{2}{5} \times 13$ $\frac{26}{5}$ or $5\frac{1}{5}$	12. $\frac{1}{10} \times 12$ $\frac{6}{5}$ or $1\frac{1}{5}$
13. $10 \times \frac{4}{5}$ 8	14. $\frac{7}{10} \times 10$ 7	15. $24 \times \frac{3}{4}$ 18	16. $\frac{6}{7} \times 21$ 18

NAME

SPM6/U11/233

Reciprocals

Find the reciprocal for each.

1. $\frac{3}{4}$ $\frac{4}{3}$ or $1\frac{1}{3}$
2. $1\frac{4}{5}$ $\frac{5}{9}$ ($1\frac{4}{5} = \frac{9}{5}$)
3. $\frac{3}{10}$ $\frac{10}{3}$
4. $2\frac{1}{6}$ $\frac{6}{13}$
5. 9 $\frac{1}{9}$

Complete.

6. $\frac{2}{3} \times \underline{\frac{3}{2}} = 1$
7. $2\frac{1}{2} \times \underline{\frac{2}{5}} = 1$
8. $\frac{4}{5} \times \underline{\frac{5}{4}} = 1$
9. $7 \times \underline{\frac{1}{7}} = 1$

Find the reciprocal for each.

10. $\frac{3}{5}$ $\frac{5}{3}$
11. $2\frac{2}{3}$ $\frac{3}{8}$
12. $\frac{2}{7}$ $\frac{7}{2}$
13. 6 $\frac{1}{6}$
14. $5\frac{1}{4}$ $\frac{4}{21}$
15. $\frac{5}{9}$ $\frac{9}{5}$
16. $\frac{1}{10}$ 10
17. 12 $\frac{1}{12}$
18. $4\frac{1}{2}$ $\frac{2}{9}$
19. $\frac{3}{8}$ $\frac{8}{3}$

Complete.

20. $\frac{5}{6} \times \underline{\frac{6}{5}} = 1$
21. $4 \times \underline{\frac{1}{4}} = 1$
22. $3\frac{5}{8} \times \underline{\frac{8}{29}} = 1$
23. $7\frac{3}{4} \times \underline{\frac{4}{31}} = 1$

SPM6/U11/234-235

Dividing Fractions

Divide. Show each quotient in lowest terms.

1. $\frac{2}{3} \div \frac{2}{9} = \frac{2}{3} \times \frac{9}{2}$ $= \frac{18}{6}$ or 3
2. $\frac{1}{2} \div 3 = \frac{1}{2} \times \frac{1}{3}$ $= \frac{1}{6}$
3. $6 \div \frac{3}{4}$ 8
4. $\frac{3}{5} \div \frac{3}{8}$ $\frac{8}{5}$ or $1\frac{3}{5}$
5. $\frac{3}{4} \div \frac{2}{5}$ $\frac{15}{8}$ or $1\frac{7}{8}$
6. $2 \div \frac{2}{7}$ 7
7. $\frac{2}{3} \div \frac{1}{4}$ $\frac{8}{3}$ or $2\frac{2}{3}$
8. $\frac{7}{8} \div \frac{5}{8}$ $\frac{7}{5}$ or $1\frac{2}{5}$
9. $5 \div \frac{1}{5}$ 25
10. $\frac{3}{10} \div \frac{1}{3}$ $\frac{9}{10}$
11. $\frac{1}{2} \div 4$ $\frac{1}{8}$
12. $\frac{5}{6} \div \frac{3}{5}$ $\frac{25}{18}$ or $1\frac{7}{18}$
13. $\frac{5}{8} \div \frac{3}{4}$ $\frac{5}{6}$
14. $12 \div \frac{5}{6}$ $\frac{72}{5}$ or $14\frac{2}{5}$
15. $9 \div \frac{1}{2}$ 18
16. $\frac{2}{3} \div 8$ $\frac{1}{12}$

NAME

SPM6/U11/238-239

Changing Fractions to Decimals

Divide the numerator by the denominator to change each fraction to a decimal. Round the quotient to two decimal places.

1. $\frac{3}{7}$ $0.428 \rightarrow 0.43$ $7\overline{)3.000}$ 28 20 14 60 56 0	2. $\frac{14}{9}$ $1.555 \rightarrow 1.56$ $9\overline{)14.000}$ 9 50 45 50 45 50 45 5	3. $\frac{1}{6}$ 0.17	4. $\frac{23}{3}$ 7.67

5. $\frac{1}{9}$ 0.11 6. $\frac{11}{6}$ 1.83 7. $\frac{5}{8}$ 0.63 8. $\frac{7}{12}$ 0.58

SPM6/U11/240-241

Fractions and Their Equivalent Decimals

Perform the indicated operation using fractions. Then perform the operation using decimals.

1. $2\frac{1}{4}$ $+ 1\frac{1}{2}$ $2\frac{1}{4}$ $1\frac{2}{4}$ $3\frac{3}{4}$	2.25 1.5 3.75	2. $4\frac{1}{2}$ $- 3\frac{1}{5}$ $4\frac{5}{10}$ $3\frac{2}{10}$ $1\frac{3}{10}$	4.5 3.2 1.3

3. $3\frac{1}{8}$
 $- 2\frac{1}{2}$
 $\frac{5}{8}$, 0.63

4. $1\frac{3}{4}$
 $+ 3\frac{5}{8}$
 $5\frac{3}{8}$, 5.38

5. $2\frac{5}{6}$
 $+ 3\frac{2}{3}$
 $6\frac{1}{2}$, 6.5

6. $12\frac{1}{9}$
 $- 3\frac{2}{3}$
 $8\frac{4}{9}$, 8.44

7. $\frac{1}{2} \times \frac{1}{2}$ $\frac{1}{4}$, 0.25 8. $\frac{3}{4} \div 2$ $\frac{3}{8}$, 0.38 9. $\frac{3}{4} \times \frac{2}{3}$ $\frac{1}{2}$, 0.50 10. $\frac{8}{9} \div 4$ $\frac{2}{9}$, 0.22

NAME _____

Practice

Perform the indicated operation.

1. $2\frac{1}{4} + 1\frac{5}{6}$ = $4\frac{1}{12}$

2. $2\frac{1}{3} - \frac{3}{4}$ = $1\frac{7}{12}$

3. 5.7×2.4 = 13.68

4. $7)8016$ = 1145 R1

5. $2071 - 865$ = 1152

6. $57\,039 + 6\,481 + 7\,212$ = 70 732

7. $3\frac{1}{4} \times \frac{2}{3}$ = $2\frac{1}{6}$

8. $\frac{3}{4} \div \frac{1}{8}$ = 6

9. $7.03 + 0.219 + 6.7$ = 13.949

10. $\$16.37 \times 8$ = \$130.96

11. $4\frac{1}{6} - 1\frac{1}{2}$ = $2\frac{2}{3}$

12. $8 \div \frac{4}{5}$ = 10

13. $\frac{1}{3} + 1\frac{1}{2} + 2\frac{3}{4}$ = $4\frac{7}{12}$

14. $3812 \div 31$ = 122 R30

15. $\$17.11 + \$8.05 + \$0.93$ = \$26.09

16. 60×117 = 7020

Solve. Show your work.

17. Ruth began painting with $2\frac{1}{4}$ cans of paint. She had $1\frac{3}{4}$ cans of paint when she finished. How many cans of paint did she use? $\frac{1}{2}$

18. The trip lasts 10 d. John's father told him that they would spend about $\frac{1}{3}$ of it driving. How many days can John expect to be riding in the car? $3\frac{1}{3}$ d

19. The camp theater charges \$0.35 for children. One night there were 52 children in the theater. How much did the children pay in all? \$18.20

20. When the 3 boys got to the amusement park their mother gave them \$6.75 to share. How much did each one get? \$2.25

21. Each car of the amusement park train holds 12 children. There are 6 cars. The train makes 20 trips each day. How many children can it carry in a day? 1440

22. Sara puts scraps of silver into the crucible to melt. The masses of the scraps are 42.3 g, 57.9 g, and 28.8 g. In all, how many grams does she have? 129 g

NAME

SPM6/U12/246-247

Writing Ratios

Write each ratio in three different ways.

1. apples to pears 2 to 5, 2:5, $\frac{2}{5}$

2. apples to bananas 2 to 1, 2:1, $\frac{2}{1}$

3. apples to all the fruit 2 to 10, 2:10, $\frac{2}{10}$

4. cherries to apples 4 to 1, 4:1, $\frac{4}{1}$

5. pears to bananas 3 to 1, 3:1, $\frac{3}{1}$

6. bananas to apples 1 to 2, 1:2, $\frac{1}{2}$

7. cherries to pears 4 to 3, 4:3, $\frac{4}{3}$

8. bananas to cherries 1 to 4, 1:4, $\frac{1}{4}$

9. cherries to all the fruit 4 to 10, 4:10, $\frac{4}{10}$

SPM6/U12/248-249

Finding Equivalent Ratios

Write three ratios equivalent to each. Answers may vary.

1. $\frac{1}{5}$ (1×2, 1×3, 1×4), $\frac{2}{10}$, $\frac{3}{15}$, $\frac{4}{20}$ (5×2, 5×3, 5×4)

2. $\frac{2}{7}$ (2×2, 7×2) $\frac{4}{14}$, $\frac{6}{21}$, $\frac{8}{28}$

3. 5:8 10:16, 15:24, 20:32

Write each in simplest form.

4. $\frac{40}{45} = \frac{8}{9}$ (÷5, ÷5)

5. $\frac{9}{27}$ (÷9, ÷9) $\frac{1}{3}$

6. 24:64 3:8

7. $\frac{48}{56}$ $\frac{6}{7}$

Write three ratios equivalent to each.

8. $\frac{5}{6}$ $\frac{10}{12}$, $\frac{15}{18}$, $\frac{20}{24}$

9. $\frac{4}{5}$ $\frac{8}{10}$, $\frac{12}{15}$, $\frac{16}{20}$

10. $\frac{2}{3}$ $\frac{4}{6}$, $\frac{6}{9}$, $\frac{8}{12}$

Write each in simplest form.

11. $\frac{18}{81}$ $\frac{2}{9}$

12. $\frac{45}{60}$ $\frac{3}{4}$

13. $\frac{42}{60}$ $\frac{7}{10}$

14. $\frac{7}{28}$ $\frac{1}{4}$

NAME

SPM6/U12/250-251

Finding the Missing Term

Find the missing value that makes the ratios equivalent.

1. $\frac{3}{7} = \frac{18}{42}$ (×6, ×6)	2. $\frac{20}{36} = \frac{80}{9}$ (÷4, ÷4)	3. $\frac{2}{3} = \frac{14}{21}$	4. $\frac{35}{10} = \frac{7}{2}$
5. $\frac{1}{8} = \frac{9}{72}$	6. $\frac{6}{8} = \frac{3}{4}$	7. $\frac{5}{7} = \frac{40}{56}$	8. $\frac{8}{3} = \frac{32}{12}$
9. $\frac{21}{30} = \frac{7}{10}$	10. $\frac{5}{1} = \frac{55}{11}$	11. $\frac{72}{45} = \frac{8}{5}$	12. $\frac{30}{15} = \frac{2}{1}$
13. $\frac{5}{6} = \frac{35}{42}$	14. $\frac{27}{12} = \frac{9}{4}$	15. $\frac{56}{64} = \frac{7}{8}$	16. $\frac{5}{9} = \frac{45}{81}$

SPM6/U12/252-253

Finding the Missing Term Using Cross Products

Use cross products to find the missing term.

1. $\frac{15}{5} = \frac{9}{3}$ $5 \times ? = 15 \times 3$ $5 \times 9 = 45$	2. $\frac{6}{14} = \frac{9}{21}$ $14 \times ? = 6 \times 21$	3. $\frac{15}{3} = \frac{25}{5}$	4. $\frac{9}{24} = \frac{12}{32}$
5. $\frac{24}{9} = \frac{16}{6}$	6. $\frac{7}{14} = \frac{5}{10}$	7. $\frac{4}{8} = \frac{7}{14}$	8. $\frac{8}{2} = \frac{20}{5}$
9. $\frac{9}{30} = \frac{6}{20}$	10. $\frac{9}{36} = \frac{4}{16}$	11. $\frac{55}{33} = \frac{10}{6}$	12. $\frac{10}{12} = \frac{25}{30}$
13. $\frac{18}{24} = \frac{15}{20}$	14. $\frac{49}{35} = \frac{28}{20}$	15. $\frac{28}{63} = \frac{16}{36}$	16. $\frac{15}{6} = \frac{25}{10}$

NAME _____

Practice

Write ratios for each of these in two different ways. Answers may vary.

1. 9 new cars, 5 used cars
   9 to 5, 9 : 5
2. win 7 of 10 races
   $\frac{7}{10}$, 7:10
3. trade 9 of 12 players
   9 to 12, 9 : 5

Write three ratios equivalent to each.

4. $\frac{3}{7}$ $\frac{6}{14}$, $\frac{9}{21}$, $\frac{12}{28}$
5. 7:2 14 : 4, 21 : 6, 28 : 8
6. $\frac{12}{3}$ $\frac{4}{1}$, $\frac{8}{2}$, $\frac{16}{4}$

Write in simplest form.

7. $\frac{25}{30}$ $\frac{5}{6}$
8. 16:2 8:1
9. 3:36 1:12
10. $\frac{84}{24}$ $\frac{7}{2}$
11. 56:35 8:5
12. $\frac{21}{30}$ $\frac{7}{10}$
13. $\frac{141}{47}$ $\frac{3}{1}$
14. $\frac{42}{56}$ $\frac{3}{4}$

Find the missing value that makes the ratios equivalent.

15. $\frac{44}{32} = \frac{11}{8}$
16. $\frac{9}{4} = \frac{63}{28}$
17. $\frac{4}{5} = \frac{80}{100}$
18. $\frac{6}{1} = \frac{72}{12}$
19. $\frac{85}{60} = \frac{17}{12}$
20. $\frac{8}{48} = \frac{1}{6}$
21. $\frac{25}{100} = \frac{1}{4}$
22. $\frac{8}{9} = \frac{40}{45}$

Use cross products to find the missing term.

23. $\frac{27}{36} = \frac{6}{8}$
24. $\frac{6}{10} = \frac{9}{15}$
25. $\frac{10}{16} = \frac{35}{56}$
26. $\frac{22}{10} = \frac{33}{15}$
27. $\frac{9}{24} = \frac{6}{16}$
28. $\frac{32}{6} = \frac{80}{15}$
29. $\frac{6}{14} = \frac{21}{49}$
30. $\frac{10}{12} = \frac{45}{54}$

NAME

Finding Unit Rates

Find the unit rate.

1. 120 m in 4 s 30 m/s $\frac{120}{4}=\frac{?}{1}$ $120\times1=4\times30$	2. 291 km in 3 h 97 km/h $\frac{291}{3}=\frac{?}{1}$	3. 45 mL in 20 s 2.25 mL/s
4. 840 m in 100 s 8.4 m/s	5. 9 L in 10 h 0.9 L/h	6. 12°C in 6 min 2° C/min
7. 2800 kg in 10 h 280 kg/h	8. 15 g in 10 cm^3 1.5 g/cm^3	9. 8 L for 20 m^2 0.4 L/m^2
10. 6 kg in 48 L 0.13 kg/L	11. 810 km in 6 h 135 km/h	12. 75 cm in 15 min 5 cm/min

Practice

Solve. Show your work.

1. The O'Malleys said that 3 out of every 10 people they met on their trip were from Ontario. They met 120 people on the trip. How many were from Ontario? 36

2. Mr. Carter used $2\frac{1}{2}$ boxes of nails to fix the roof. He began work with $3\frac{1}{4}$ boxes. How many boxes did he have when he finished? $\frac{3}{4}$

3. It is 78 km by train from our village to the city. By bus, it is 93 km. How much shorter is it by train? 15 km

4. A crew of three workers harvested 1323 bales of hay in the dry spell. What was the average number of bales per worker? 441

5. The scientists in the balsa raft travelled $\frac{1}{4}$ of the trip before the first storm and $\frac{1}{3}$ of it before the second storm. What fraction of the trip remained at that point? $\frac{5}{12}$

6. Peter's father told him that for every dollar Peter gave to the Scholarship Fund, he would give $1.50. Peter gave $4.80. How much did his father have to give? $7.20

NAME

Unit Pricing

Find the unit price to the nearest cent.

1. 3 peaches for $0.42 $0.14 1 peach 3)$0.42 costs 14¢	2. $1.81 for 9 potatoes $0.20 9)$1.81	3. 3 L of milk for $2.34 $0.78L
4. $1.12 for 6 pears $0.19	5. $1.11 for 3 jars of mustard $0.37	6. $1.95 for 15 tomatoes $0.13
7. 3 turnips for $1.00 $0.33	8. 4 L of motor oil for $3.96 $0.99L	9. 24 cookies for $6.70 $0.28

Practice

Solve. Show your work.

1. The school computer can print 32 characters each second. How many characters can it print in 15 s? 480

2. The Hill School just bought a computer for $995, a printer for $795, and a disk drive for $1195. How much was this altogether? $2985

3. Karen, Kim, and Ken took turns doing a typing job on the word processor. Karen did $\frac{1}{2}$ of the work, Kim $\frac{1}{5}$, and Ken $\frac{1}{10}$. How much of the job was left? $\frac{1}{5}$

4. Ted bought a can of paint that promised on the label to cover 40 m^2. He plans to paint both sides of a fence which is 9.375 m long and 1.6 m high. What portion of the can will this take? $\frac{3}{4}$

5. Electricity for the light on Jenny's desk costs about $\frac{6}{10}$ of a cent per hour. If Jenny leaves the light burning for 24 h, about how much will it cost? $0.14

6. Peter estimates the jar holds 375 jelly beans. He hopes to open it and share it with 14 others in his class. How many would each person get? 25

NAME _____

Practice

Perform the indicated operation.

1. $2\frac{2}{7} + 1\frac{3}{5}$ → $3\frac{31}{35}$

2. $4 \div \frac{2}{5}$ → 10

3. $2.07 - 1.624$ → 0.446

4. 458×103 → 47174

5. $9\overline{)42\,063}$ → 4673 R6

6. $5\frac{7}{10} - 2\frac{4}{5}$ → $2\frac{9}{10}$

7. $3\frac{1}{3} \times 1\frac{1}{6}$ → $3\frac{8}{9}$

8. $24\,039 + 6\,475$ → 30 514

9. $\frac{3}{7} \div 3$ → $\frac{1}{7}$

10. 4.7×2.9 → 13.63

11. $5\frac{1}{3} + 2\frac{1}{4} + 6\frac{5}{12}$ → 14

12. $\frac{4}{9} \div \frac{2}{3}$ → $\frac{2}{3}$

13. $3\frac{1}{5} \times \frac{10}{8}$ → 4

14. $6084 \div 14$ → 434 R8

Solve. Show your work.

15. The girls challenged the boys to a reading contest. While the boys read 1157 pages, Alice read 326 pages, Betty read 354, and Claudette read 477. Who won the contest? tie

16. A team of 24 helpers will try to telephone all 1152 residents of the town to urge them to vote in the election. How many will each person have to call? 48

17. Mrs. Hill owes the telephone company $85.59. She paid $37.50 today and will pay $16.25 next month. How much will she owe then? $31.84

18. How many square metres of cloth are needed to make a triangular flag which has a height of 1.8 m and a base of 2.5 m? 2.25 m^2

19. The directions tell Jep to remove half the liquid from the jar and then pour $\frac{4}{5}$ of what remains into a beaker. What fraction of one full jar would this be? $\frac{2}{5}$

20. $2\frac{1}{2}$ bags of lawn food are in George's garage. He spreads the food from $1\frac{2}{3}$ bags onto the back lawn. How many bags of lawn food are left? $\frac{5}{6}$

NAME

SPM6/U13/262-263

Writing Percents

Complete the chart.

1.	42 out of 100	42:100	$\frac{42}{100}$	0.42	42%
2.	9 out of 100	9:100	$\frac{9}{100}$	0.09	9%
3.	76 out of 100	76:100	$\frac{76}{100}$	0.76	76%
4.	55 out of 100	55:100	$\frac{55}{100}$	0.55	55%
5.	3 out of 100	3:100	$\frac{3}{100}$	0.03	3%
6.	24 out of 100	24:100	$\frac{24}{100}$	0.24	24%
7.	63 out of 100	63:100	$\frac{63}{100}$	0.63	63%
8.	12 out of 100	12:100	$\frac{12}{100}$	0.12	12%
9.	92 out of 100	92:100	$\frac{92}{100}$	0.92	92%
10.	100 out of 100	100:100	$\frac{100}{100}$	1.00	100%

SPM6/U13/264-265

Fractions and Decimals as Percents

Show each decimal as a percent.

1. 0.34 34%
2. 0.75 75%
3. 0.06 6%
4. 0.20 20%

Show each fraction as a percent.

5. $\frac{3}{4}$ 75% (0.75, 4)3.00)
6. $\frac{3}{10}$ 30% (0.3, 10)3)
7. $\frac{3}{8}$ 38%
8. $\frac{6}{7}$ 86%

Show each decimal as a percent.

9. 0.08 8%
10. 0.28 28%
11. 0.83 83%
12. 0.01 1%
13. 0.55 55%
14. 0.9 90%
15. 0.62 62%
16. 0.3 30%

Show each fraction as a percent.

17. $\frac{6}{10}$ 60%
18. $\frac{3}{5}$ 60%
19. $\frac{4}{5}$ 80%
20. $\frac{5}{12}$ 42%
21. $\frac{4}{9}$ 44%
22. $\frac{5}{9}$ 56%
23. $\frac{2}{3}$ 67%
24. $\frac{1}{20}$ 5%

NAME

SPM6/U13/266-267

Percents as Decimals and Fractions

Write a decimal for each percent.

1. 55% 0.55
2. 30% 0.30
3. 1% 0.01
4. 80% 0.80

Write a fraction with a denominator of 100 for each percent.

5. 20% $\frac{20}{100}$
6. 54% $\frac{54}{100}$
7. 25% $\frac{25}{100}$
8. 48% $\frac{48}{100}$

Write a decimal for each percent.

9. 72% 0.72
10. 8% 0.08
11. 45% 0.45
12. 60% 0.60

Write a fraction with a denominator of 100 for each percent.

13. 40% $\frac{40}{100}$, $\frac{2}{5}$
14. 4% $\frac{4}{100}$, $\frac{1}{25}$
15. 90% $\frac{90}{100}$, $\frac{9}{10}$
16. 50% $\frac{50}{100}$, $\frac{1}{2}$
17. 85% $\frac{85}{100}$, $\frac{17}{20}$
18. 68% $\frac{68}{100}$, $\frac{17}{25}$
19. 36% $\frac{36}{100}$, $\frac{9}{25}$
20. 75% $\frac{75}{100}$, $\frac{3}{4}$

21. Show each percent above as a fraction in lowest terms.
Use another sheet of paper if needed.

SPM6/U13/268-269

Finding a Percent of a Number

Find each of these.

1. 15% of 48

48
0.15
240
480
7.20

2. 20% of 195

195
0.20
39

3. 5% of 320

16

4. 50% of 94

47

5. 40% of 20

8

6. 72% of 625

450

7. 45% of 50

22.50

8. 67% of 180

120.6

9. 88% of 44

38.72

NAME

SPM6/U13/270-271

Interest

Find each of these.

1. 6% of $1200 $1200 × 0.06 = $72.00	2. 14% of $6000 $6000 × 0.14 = $840	3. 10% of $12 000 $1200

4. 9% of $6700 $603

5. 15% of $16 000 $2400

6. 8% of $86 $6.88

7. 12% of $1725 $207

8. 18% of $3250 $585

9. 24% of $500 $120

Solve.

10. You deposit $25 in a bank. In a year the bank will pay 6% of the $25 in interest. How much will the interest be? $1.50

11. Mrs. Swoffo borrowed $5000. In one year she must pay 18% of $5000 in interest. How much will the interest be? $900

SPM6/U13/272-273

Discount

Find the discount and sale price.

	Price	Discount	Sale Price
1.	$12.00 less 20%	$12.00 × 0.02 = $2.4000	$12.00 − 2.40 = $9.60
2.	$20 less 5%	$1.00	$19.00
3.	$1800 less 25%	$450	$1350
4.	$7.20 less 15%	$1.08	$6.12
5.	$9.50 less 10%	$0.95	$8.55
6.	$6.25 less 8%	$0.50	$5.75

NAME

Practice

Perform the indicated operation.

1. 6.481×3.7 = 23.9797

2. $2\frac{3}{8} + 4\frac{7}{8}$ = $7\frac{1}{4}$

3. $28\overline{)130.2}$ = 4.65

4. $\$263.04 - 85.77$ = \$348.81

5. $5.76 + 6.8$ = 12.56

6. $14.3 - 9.812$ = 4.488

7. $\$7.73 + 6.24 + 9.05$ = \$23.02

8. $4\overline{)8824}$ = 2206

9. 6.35×17 = 107.95

10. $6 - 3\frac{1}{5}$ = $2\frac{4}{5}$

11. 20% of 145 = 29

12. 6.3 + 12.14 + 9 = 27.44

13. 5246 ÷ 43 = 122

14. 172 − 14.61 = 157.39

15. 6.3 x 0.81 = 5.103

16. \$2773 + \$84 + \$906 = \$3763

Solve. Show your work.

17. Which is the better buy, a box with 6 fruit bars for \$1.38 or a larger one with 16 fruit bars for \$3.84? 6 fruit bars for \$1.38

18. A magazine offers a one-year renewal for \$18.50 or a three-year renewal for \$45.75. How much less per year is the three-year price? \$3.25

19. The populations of the three largest towns in this district are 12 064, 3 922, and 6 887. What is the total population of these towns? 22 873

20. 374 boys and girls arrive for the first day of school. They are divided into 17 groups of equal size for orientation. How many are in a group? 22

21. The Principal tells Mr. Potter's class that 25 percent of them have excellent marks. The class has 24 children. How many are getting these marks? 6

22. The school nurse told Shanya that she grew 2.7 cm this year. If Shanya grows that same amount for the next 5 years, how much taller will she be then? 13.5 cm

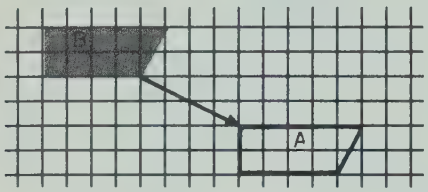
NAME

SPM6/U14/276-277

Slides

Use tracing paper to test whether shape A is the slide image of shape B for the slide arrow shown.

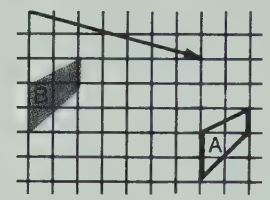
1.



no

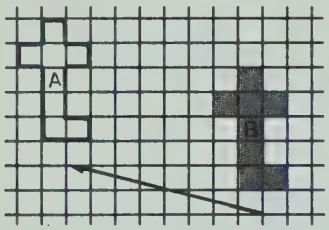
Slide arrow is too short!

2.



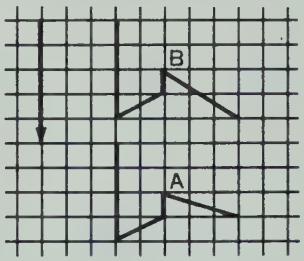
yes

3.



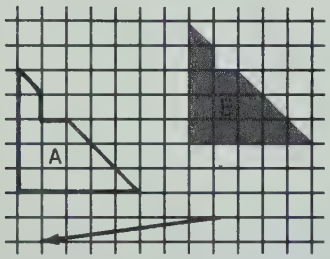
yes

4.



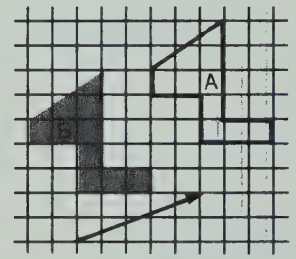
no

5.



no

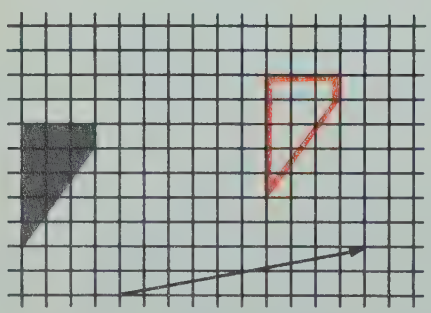
6.



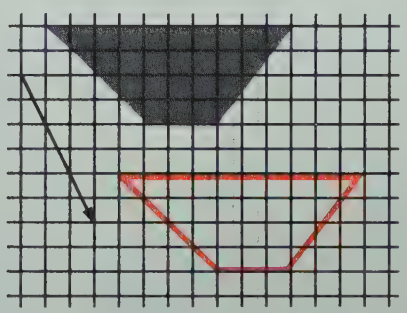
yes

Use tracing paper to help you draw the slide image of the shape for the slide arrow shown.

7.



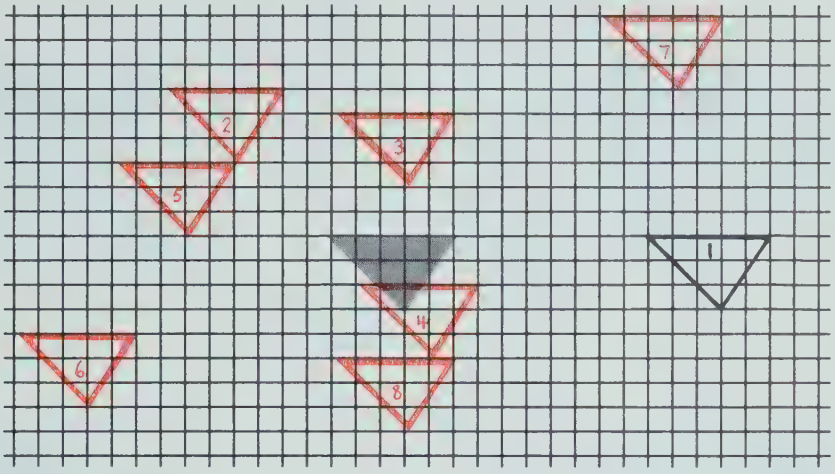
8.



Drawing a Slide Image Using a Rule

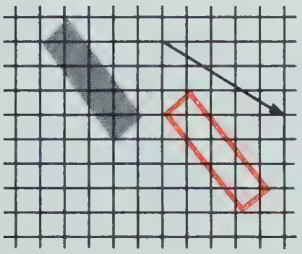
Draw the slide image of the shape for each rule.

1. (13R, 0D)
2. (7L, 6U)
3. (0L, 5U)
4. (1R, 2D)
5. (9L, 3U)
6. (13L, 4D)
7. (11R, 9U)
8. (0R, 5D)

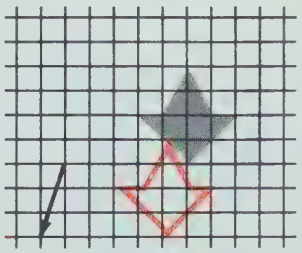


For each slide arrow, write the rule and draw the slide image.

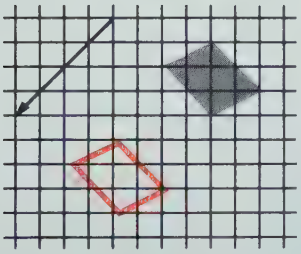
9. (5R,3D)



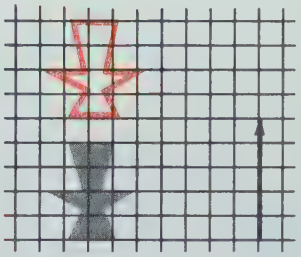
10. (1L, 3D)



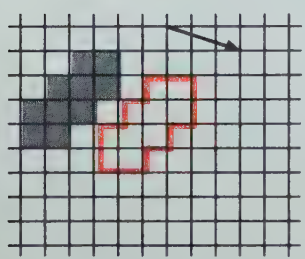
11. (4L, 4D)



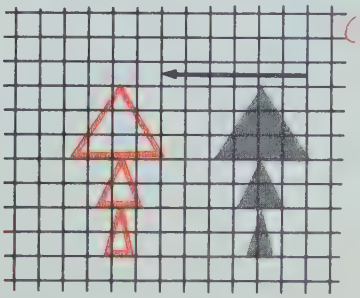
12. (0, 5U)



13. (3R, 1D)

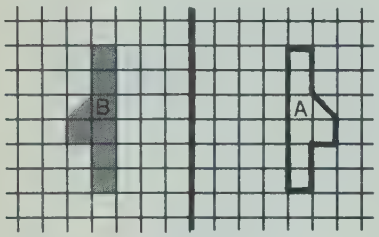


14. (6L, 0)



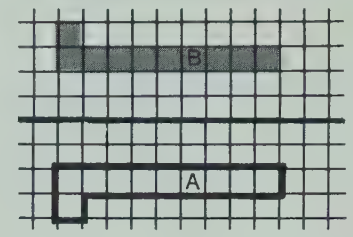
Flips

Use tracing paper to test whether shape A is the flip image of shape B for the flip line shown.

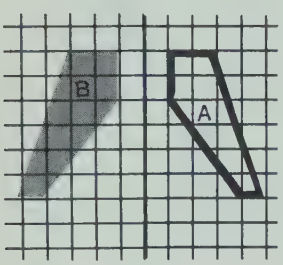
1. 

no

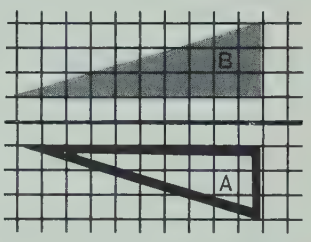
A is too far from the flip line!

2. 

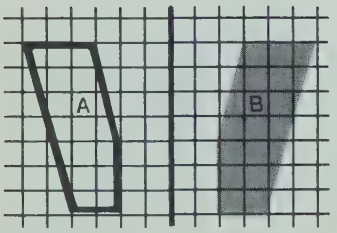
yes

3. 

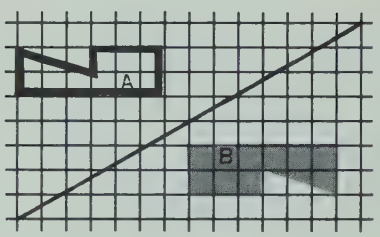
yes

4. 

no

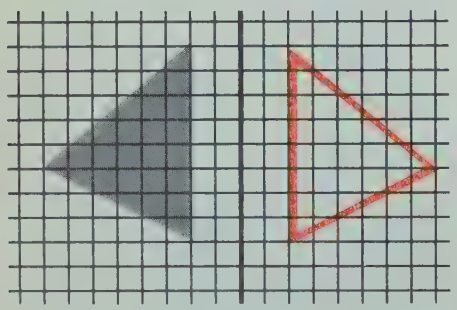
5. 

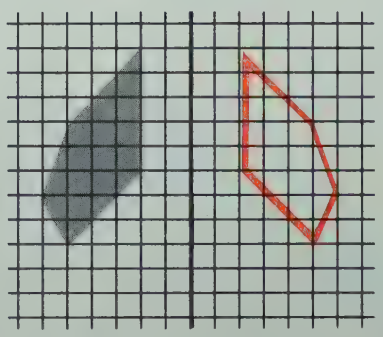
yes

6. 

no

Use tracing paper to help you draw the flip image of the shape for the flip line shown.

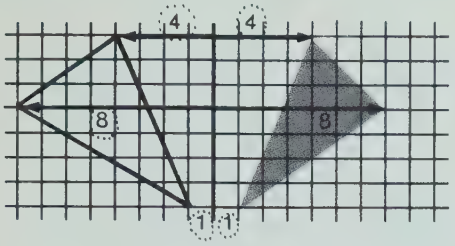
7. 

8. 

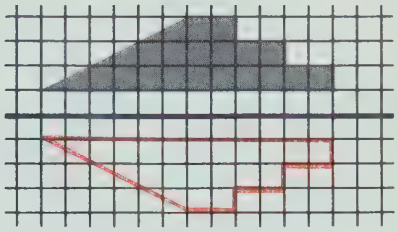
Drawing a Flip Image by Counting

Draw the flip image of the shape for each flip line shown.

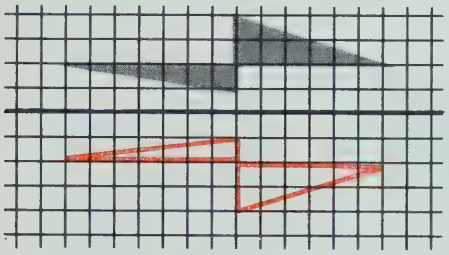
1.



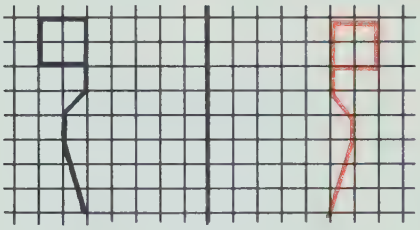
2.



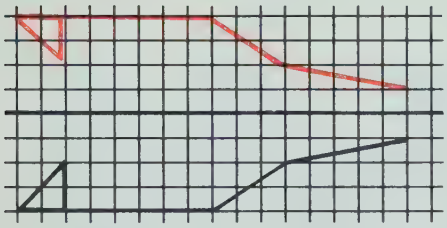
3.



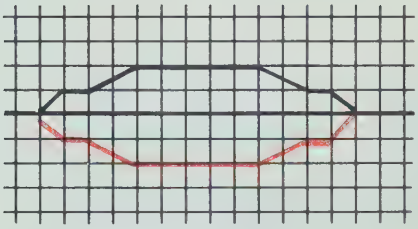
4.



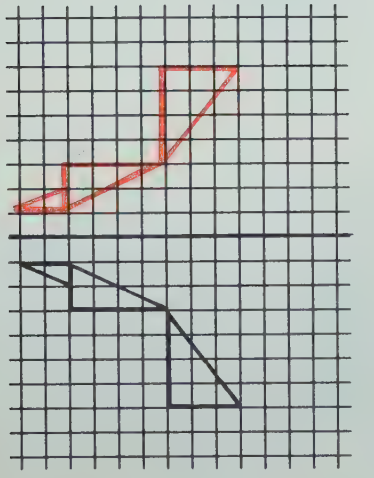
5.



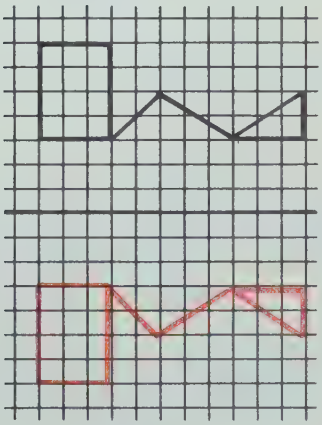
6.



7.



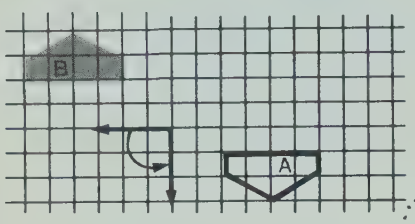
8.



Turns

Use tracing paper to test whether shape A is the turn image of shape B for the turn angle shown.

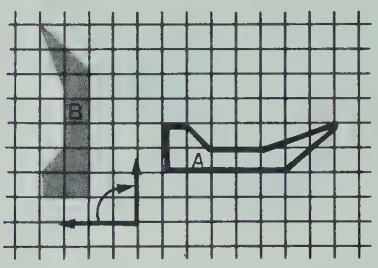
1.



no

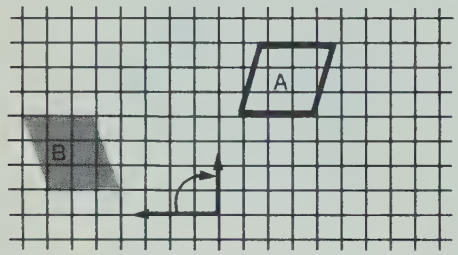
Turn angle is too small!

2.



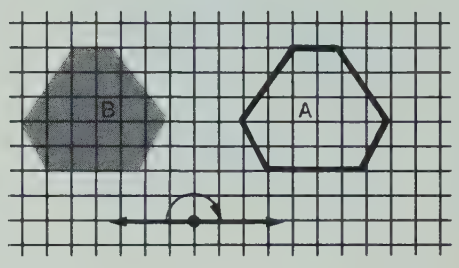
yes

3.



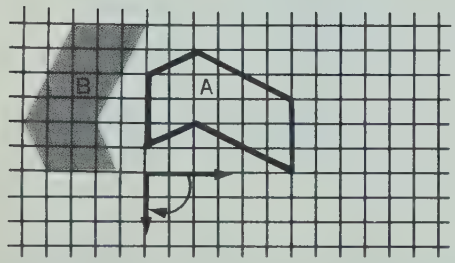
yes

4.



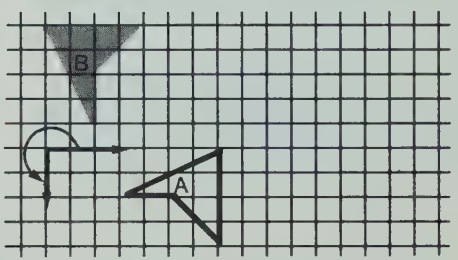
no

5.



yes

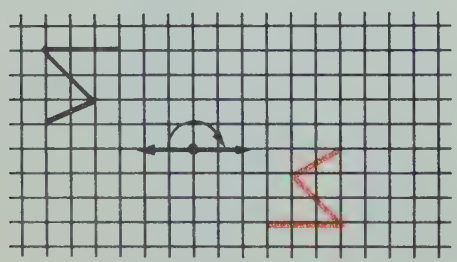
6.



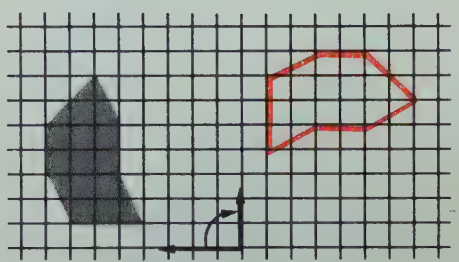
no

Use tracing paper to help draw the turn image of the shape for the turn angle shown.

7.



8.

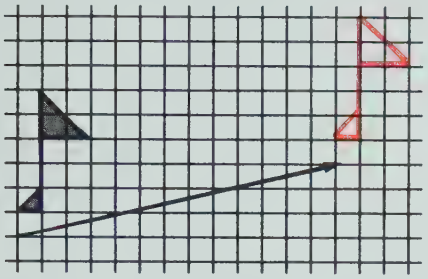


NAME

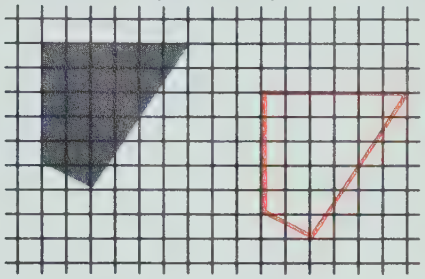
Practice

Use tracing paper. Draw the slide image for each rule or slide arrow.
Draw the flip image for each flip line. Draw the turn image for each turn angle.

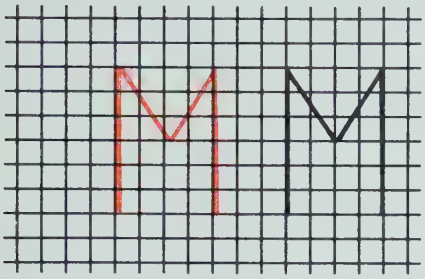
1.



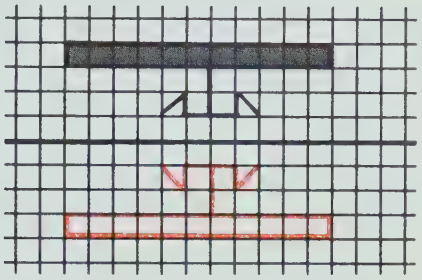
2. (9R, 2D)



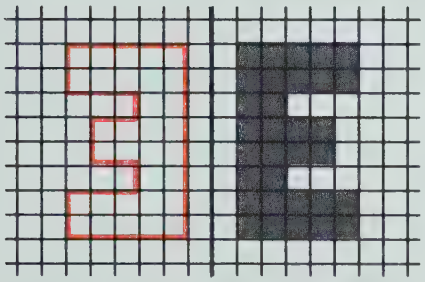
3. (7L, 0)



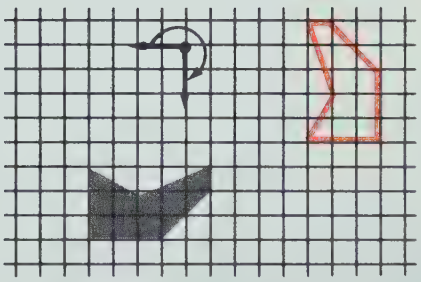
4.



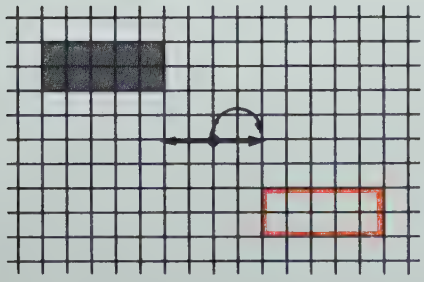
5.



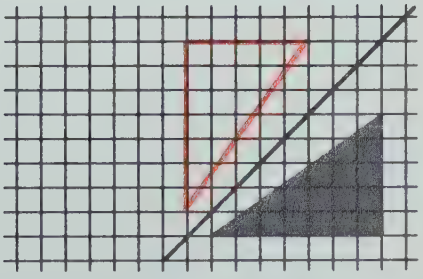
6.



7.



8.



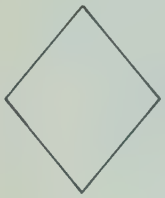
NAME

SPM6/U14/286-287

Rotational Symmetry

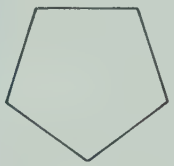
Use tracing paper to test each shape for turn symmetry.
Then, for those with turn symmetry, give the number of different turns less than a full turn for which the shape fits onto itself.

1.



yes, 1

2.

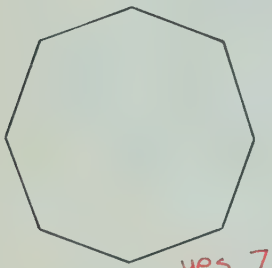


yes, 4

3.

yes, 1

4.

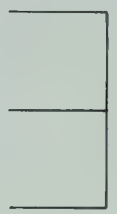


yes, 7

5.

yes, 1

6.



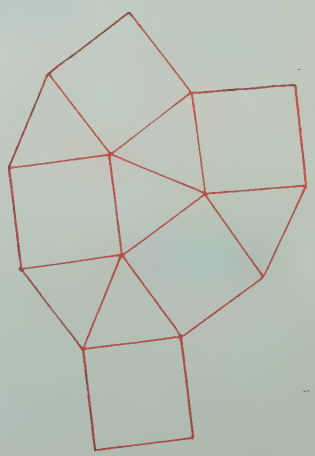
no

SPM6/U14/288-289

Tiling Patterns

Use these shapes. Sketch a pattern without spaces.

1.

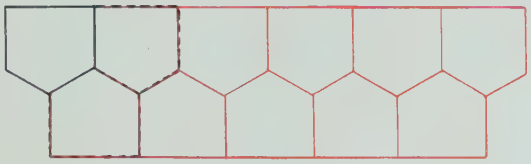


2. Try the exercises on pages 288-289 of your textbook again.

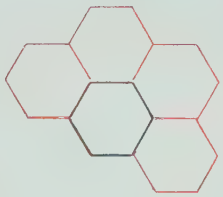
NAME

Tiling the Plane

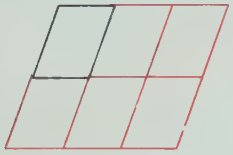
Which of these shapes can be used to make tiling patterns that are tessellations? Sketch the tessellations. Use another piece of paper if necessary.

1. 

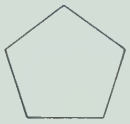
yes

2. 

yes

3. 

yes

4. 

no

Practice

Solve.

1. Tickets to watch the college hockey game cost $2.75 for students. Bob's coach treats his team. How much will 15 student tickets cost? $41.25

2. The coat Jean wants is on sale. It usually costs $85 but a 15% discount is being given this month. How much will it cost? $72.25

3. Apples cost 15¢. Pears cost 18¢. Sam bought 2 apples for himself and an apple and a pear for each of his 5 friends. How much did he spend? $1.95

4. Frank's reading book has 185 pages. Each page contains about 35 lines. Each line contains about 8 words. About how many words are in the book? 51 800

5. Mr. Bartlet plans to wallpaper one wall of a room. The wall is 4.2 m long and 2.5 m high. A large window 2 m long and 1.5 m high is in the wall. How many square metres of paper will he need? 7.5 m^2

6. A Manitoba town has a population of 14 472 people. Assuming the same number were born in each month of the year, how many of the people were born in May? 1206

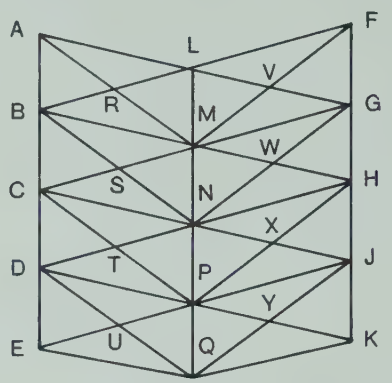
NAME

SPM6/U14/292-293

Identifying Slide, Flip, and Turn Images in Tiling Patterns

For the tiling pattern shown, under what motion is

1. △ALR an image of △MBR? turn
2. △MGA an image of △NHB? slide
3. △MBC an image of △CNM? turn



4. △ALM an image of △FLM? flip
5. △MRL an image of △ARB? turn
6. △LMA an image of △MNB? slide
7. △AMG an image of △FMB? flip
8. Name three triangles that are slide images of △GSN. △FRM, △HTP, △JUQ
9. Name two triangles that are turn images of △MRB. △ARL, △BSM
10. Name two triangles that have a S as a vertex. Name flip images of these triangles.
    Answers will vary. Any triangle having S as a vertex has a flip image in the diagram.
11. Name two other triangles that are flip images of each other. These triangles should have shapes different from the triangles named in Exercise 10.
    Answers will vary.

Practice

Solve. Show your work.

1. After fishing all morning, Udak has four fish. Their masses are 271 g, 305 g, 193 g, and 323 g. What is their average mass? 273 g
2. By buying a lot of cans of tennis balls, the club gets a 30% discount. Without a discount, a can costs $2.30. What does the club pay? $1.61
3. The Barrows' holiday trip took them 780 km by air, 120 km by water, and 562 km by road. In all, how far did they go? 1462 km
4. Blasters removed 24 200 t of rock for the railroad. 20 t were put in each freight car to ship it away. How many freight cars were needed? 1210
5. The population of Mathville has gone from 7 320 in 1880 to 31 462 in 1980. How much growth is this? 24 142
6. What is the perimeter of a rectangle with length 3.62 cm and width 1.8 cm? 10.84 cm

NAME _____

Practice

Perform the indicated operation.

1. $7\frac{1}{3} + 2\frac{1}{6} + 3\frac{5}{6}$ = $13\frac{1}{3}$

2. 4.73×6.2 = 29.326

3. $\$14.03 - 9.46$ = \$ 4.57

4. $16)72.32$ = 4.52

5. $86\,041 + 3\,972 + 285$ = 90 298

6. 85% of 62 = 52.70

7. $13 - 4.27$ = 8.73

8. $134)1000$ = 7 R62

9. 0.13×0.4 = 0.052

10. $\$ 18.46 + 723.32$ = \$741.78

11. 30% of 841 = 252.30

12. $1.296 \div 16$ = 0.081

13. $7.3 + 18.24 + 0.017$ = 25.557

14. 3.6×18.7 = 67.32

15. $\$47.38 - \$6.54$ = \$40.84

16. $(873 - 256) \times 37$ = 22 829

Solve. Show your work.

17. Stan gets 21 hits in 84 chances. In what percent of his chances does he get a hit? 25 %

18. What is the area of a triangular sail with a base of 6.4 m and a height of 8.2 m? 26.24 m^2

19. Molly buys 2 of the frames which cost \$7.95 each and 5 of the little ones for \$1.98 each. What is her total bill? \$25.80

20. Mr. Morgan earns \$12 348, but pays \$2 840 in taxes. How much pay does he take home? \$9508

21. A scientist estimates that, on the average, 1 out of 25 birds of a certain species has been tagged by their team. If 225 of these birds are caught at random, about how many should have tags? 9

22. The circumference of the earth at the equator is about 40 000 km. The earth rotates through this distance in 24 h. Through how many kilometres at the equator does the earth rotate in 1 h? 1666.7 km

NAME

SPM6/U15/299

Changing Place Values in Ratios

In both terms of the ratio, change the place values in the same way to get an equivalent ratio.

1. $\frac{1.88}{0.94} = \frac{188}{94}$ (x 100 on both terms)	2. $\frac{1.32}{7.2} = \frac{13.2}{72}$ (x 10 on both terms)	3. $\frac{5.5}{8.99} = \frac{550}{899}$
4. $\frac{6.5}{3.2} = \frac{65}{32}$	5. $\frac{2.823}{4.9} = \frac{28.23}{49}$	6. $\frac{9}{0.94} = \frac{900}{94}$
7. $\frac{7.82}{1.8} = \frac{78.2}{18}$	8. $\frac{6}{6.8} = \frac{60}{68}$	9. $\frac{0.08}{0.06} = \frac{8}{6}$
10. $\frac{63}{1.63} = \frac{6300}{163}$	11. $\frac{3.655}{0.29} = \frac{365.5}{29}$	12. $\frac{27.2}{4.386} = \frac{27200}{4386}$

SPM6/U15/300-301

Dividing by Numbers Less Than 1

Divide.

1. $0.8\overline{)37.6}$ = 47 (32, 56, 56, 0)	2. $0.7\overline{)3.64}$ = 52 (35, 14, 14, 0)	3. $0.9\overline{)16.2}$ = 18	4. $0.4\overline{)0.22}$ = 0.55
5. $0.9\overline{)6.57}$ = 7.3	6. $0.3\overline{)0.219}$ = 0.73	7. $0.7\overline{)6.51}$ = 9.3	8. $0.6\overline{)4.5}$ = 7.5
9. $0.2\overline{)0.75}$ = 3.75	10. $0.4\overline{)6.8}$ = 17	11. $0.5\overline{)1.85}$ = 3.7	12. $0.8\overline{)6.25}$ = 7.8125

NAME

SPM6/U15/302-303

Dividing with Tenths

Divide.

1. $3.2\overline{)36.80}$ → 11.5 32 48 32 160 160 0	2. $6.8\overline{)44.20}$ → 6.5 408 340 340 0	3. $1.2\overline{)39.6}$ → 33	4. $3.8\overline{)10.26}$ → 2.7

5. $5.2\overline{)130}$ → 25	6. $2.2\overline{)1.342}$ → 0.610	7. $4.4\overline{)0.528}$ → 0.12	8. $9.8\overline{)872.2}$ → 89

SPM6/U15/304-305

Rounding Quotients

Divide. Round the quotient to the nearest tenth.

1. $5.2\overline{)17.280}$ → 3.32 → 3.3 156 168 156 120 104 16	2. $4.6\overline{)380.00}$ → 8.26 → 8.3 368 120 92 280 276 4	3. $0.7\overline{)29.1}$ → 41.6	4. $1.5\overline{)4.6266}$ → 3.1

5. $3.4\overline{)1.262}$ → 0.4	6. $0.8\overline{)2.396}$ → 3.0	7. $6.2\overline{)78}$ → 12.6	8. $8.2\overline{)0.104}$ → 0.0

9. Round each quotient above to the nearest hundredth.

3.32, 8.26, 41.57, 3.08, 0.37, 3.00, 12.58, 0.01

10. Round each quotient above to the nearest thousandth.

3.323, 8.261, 41.571, 3.084, 0.371, 2.995, 12.581, 0.013

NAME _____

Practice

In both terms of the ratio, change the place values in the same way to get an equivalent ratio.

1. $\frac{0.04}{0.37} = \frac{4}{37}$

2. $\frac{3}{6.4} = \frac{30}{64}$

3. $\frac{2.3}{0.004} = \frac{2300}{4}$

Divide.

4. $0.8\overline{)1.6}$ → 2

5. $0.9\overline{)10.8}$ → 12

6. $0.5\overline{)10.5}$ → 21

7. $0.4\overline{)20}$ → 50

8. $0.6\overline{)13.2}$ → 22

9. $0.2\overline{)5}$ → 25

10. $2.4\overline{)148.8}$ → 62

11. $4.8\overline{)7.2}$ → 1.5

12. $3.6\overline{)630}$ → 175

13. $1.7\overline{)5.44}$ → 3.2

14. $4.9\overline{)1.715}$ → 0.35

15. $3.6\overline{)30.24}$ → 8.4

Divide. Round the quotient to the nearest tenth.

16. $3.4\overline{)12.78}$ → 3.8

17. $1.8\overline{)8.6}$ → 4.8

18. $6.2\overline{)45.5}$ → 7.3

19. $0.8\overline{)0.158}$ → 0.2

Divide. Round the quotient to the nearest hundredth.

20. $4.2\overline{)16.6}$ → 3.95

21. $2.8\overline{)642}$ → 229.29

22. $0.7\overline{)0.72}$ → 1.03

23. $8.8\overline{)78.18}$ → 8.88

Divide. Round the quotient to the nearest thousandth.

24. $5.8\overline{)7.16}$ → 1.235

25. $9.1\overline{)4.4}$ → 0.484

26. $7.3\overline{)58}$ → 7.945

27. $1.9\overline{)44.953}$ → 23.660

NAME

SPM6/U15/306-307

Dividing with Hundredths

Divide.

1. $6.38\overline{)204.16}$ 32 1914 1276 1276 0	2. $0.74\overline{)18.50}$ 25 148 370 370 0	3. $2.09\overline{)150.48}$ 72	4. $4.68\overline{)70.2}$ 15

5. $0.07\overline{)2.73}$ 39

6. $1.76\overline{)86.24}$ 49

7. $0.25\overline{)19.5}$ 78

8. $7.95\overline{)445.2}$ 56

SPM6/U15/308-309

Dividing with Tenths, Hundredths, Thousandths

Divide.

1. $0.027\overline{)0.1026}$ 3.8 81 216 216 0	2. $2.79\overline{)161.82}$ 58 1395 2232 2232 0	3. $4.9\overline{)12.936}$ 2.64	4. $5.05\overline{)37.37}$ 7.4

5. $0.148\overline{)9.62}$ 65

6. $7.6\overline{)72.2}$ 9.5

7. $0.025\overline{)14.3}$ 572

8. $8.4\overline{)35.7}$ 4.25

NAME

SPM6/U15/310-311

Rounding Quotients

Divide. Round the quotient to the nearest tenth.

1. $6.15\overline{)7.8200}$ → 1.27 → 1.3
   615
   1670
   1230
   4400
   4305
   95

2. $0.348\overline{)2.03000}$ → 5.83 → 5.8
   1740
   2900
   2784
   1160
   1044
   16

3. $5.4\overline{)15.9}$ → 2.9

4. $0.6\overline{)1.616}$ → 2.7

5. $0.54\overline{)3.6}$ → 6.7

6. $4.3\overline{)15.27}$ → 3.6

7. $0.66\overline{)4.6}$ → 7.0

8. $9.88\overline{)5}$ → 0.5

9. Round each quotient above to the nearest hundredth.
   1.27, 5.83, 2.94, 2.69, 3.67, 3.55, 6.97, 0.51

10. Round each quotient above to the nearest thousandth.
    1.272, 5.833, 2.944, 2.693, 6.667, 3.551, 6.970, 0.506

SPM6/U15/312-313

Estimating Quotients

Estimate each quotient.

1. $0.76\overline{)4.18}$ → $8\overline{)40}$ → 5

2. $1.9\overline{)16.3}$ → $2\overline{)16}$ → 8

3. $42\overline{)3196}$ → 80

4. $8.1\overline{)39.2}$ → 5

5. $3.6\overline{)15.9}$ → 4

6. $0.72\overline{)5.5}$ → 8

7. $0.058\overline{)4.77}$ → 80

8. $89\overline{)3715}$ → 41

9. $5.1\overline{)19.2}$ → 4

10. $0.288\overline{)1.795}$ → 6

11. $5.9\overline{)2.38}$ → 0.4

12. $67\overline{)27.7}$ → 0.4

NAME _____

Practice

Perform the indicated operation.

1. $\begin{array}{r} 27\,042 \\ 9\,416 \\ +\ 8\,530 \\ \hline 44\,988 \end{array}$

2. $5\frac{1}{3} - 2\frac{1}{2} = 2\frac{5}{6}$

3. $\begin{array}{r} 4.65 \\ \times\ 0.88 \\ \hline 4.0920 \end{array}$

4. $\begin{array}{r} 4.3 \\ -\ 1.86 \\ \hline 2.44 \end{array}$

5. $1.6\overline{)29.28} = 18.3$

6. $\begin{array}{r} \$47.36 \\ \times\ 28 \\ \hline \$1326.08 \end{array}$

7. $\begin{array}{r} 47\,006 \\ -\ 9\,835 \\ \hline 37\,171 \end{array}$

8. $\begin{array}{r} \$2781 \\ 415 \\ +\ 6309 \\ \hline 9505 \end{array}$

9. $6\frac{1}{12} + 5\frac{1}{4} + 3\frac{3}{4} = 15\frac{1}{12}$

10. $50\overline{)47\,700} = 954$

11. $2\frac{1}{2} \div 1\frac{7}{8}$ $\frac{4}{3}$ or $1\frac{1}{3}$

12. $3\frac{1}{5} \times \frac{5}{8}$ 2

13. 25% of 92 23

14. $0.15\overline{)4.89} = 32.6$

15. 0.73 + 2.92 + 5.501 9.151

16. (6.3 − 4.02) × 7.8 17.784

Solve. Show your work.

17. A packing crate with length 42 cm, width 35 cm, and height 20 cm can hold what volume of goods? 29 400 cm^3

18. The butcher plans to sell 187.5 kg of beef in packages containing 0.75 kg each. How many packages will there be? 250

19. Monique is waiting until the dress she likes is on sale. The regular price is $44.50. The sale discount is 18%. How much will she save? $8.01

20. The grocer sells fruit punch in 2.5 L bottles. They are filled from a tank holding 312.5 L. How many 2.5 L bottles can the grocer fill? 125

21. This year's wheat harvest at the Glencairn's farm was 11 428 kg. Last year the harvest was 5 709 kg. How much more was harvested this year? 5719 kg

22. The scientist is measuring the movement of a glacier. In 3 d, movements of 0.15 cm, 0.608 cm, and 1.03 cm are detected. What is the total distance? 1.788 cm

NAME

SPM6/U16/316-317

Writing Integers

Ring the positive integers.

1. $^{-}3$, $^{+}5$, $^{-}2$

2. $^{+}4$, $^{+}25$, 0

Ring the negative integers.

3. $^{-}7$, 0, $^{+}3$

4. $^{-}38$, $^{+}8$, $^{-}1$

Write the opposite of each integer.

5. $^{-}5$ $^{+}5$

6. $^{+}1$ $^{-}1$

7. $^{-}10$ $^{+}10$

8. $^{+}15$ $^{-}15$

Ring the positive integers.

9. $^{+}6$, 0, $^{-}8$

10. $^{+}7$, $^{+}102$, $^{-}12$

Ring the negative integers.

11. $^{-}15$, $^{+}2$, $^{-}6$

12. 0, $^{+}9$, $^{-}9$

Write the opposite of each integer.

13. $^{-}4$ $^{+}4$

14. $^{+}10$ $^{-}10$

15. $^{+}57$ $^{-}57$

16. $^{-}212$ $^{+}212$

SPM6/U16/318-319

Comparing and Ordering Integers

Use > or < to make true statements.

1. $^{-}4$ < $^{-}1$

2. $^{+}3$ > $^{-}2$

3. 0 > $^{-}3$

4. $^{+}4$ < $^{+}7$

List from least to greatest.

5. $^{-}2$, $^{-}6$, $^{+}2$, $^{+}1$, $^{+}3$, $^{-}4$
$^{-}6$, $^{-}4$, $^{-}2$, $^{+}1$, $^{+}2$, $^{+}3$

6. $^{-}2$, 0, $^{-}8$, $^{+}5$, $^{-}1$, $^{+}3$
$^{-}8$, $^{-}2$, $^{-}1$, 0, $^{+}3$, $^{+}5$

Use > or < to make true statements.

7. $^{+}6$ > $^{+}5$

8. $^{-}5$ < $^{-}3$

9. $^{-}2$ < $^{+}1$

10. $^{+}3$ > 0

11. $^{-}2$ > $^{-}7$

12. 0 > $^{-}6$

13. $^{-}8$ > $^{-}10$

14. $^{+}6$ > $^{-}6$

List from least to greatest.

15. $^{-}5$, $^{-}9$, $^{+}4$, 0, $^{-}2$, $^{+}6$
$^{-}9$, $^{-}5$, $^{-}2$, 0, $^{+}4$, $^{+}6$

16. $^{-}10$, $^{+}3$, $^{-}4$, $^{-}1$, $^{+}5$, $^{-}6$
$^{-}10$, $^{-}6$, $^{-}4$, $^{-}1$, $^{+}3$, $^{+}5$

List from greatest to least.

17. $^{-}9$, $^{+}3$, $^{-}6$, $^{+}12$, $^{+}2$, $^{-}1$
$^{+}12$, $^{+}3$, $^{+}2$, $^{-}1$, $^{-}6$, $^{-}9$

18. $^{+}2$, $^{-}4$, $^{+}8$, 0, $^{-}6$, $^{-}7$
$^{+}8$, $^{+}2$, 0, $^{-}4$, $^{-}6$, $^{-}7$

NAME

Adding Integers

Add.

1. $^{+}5 + {}^{-}8$ -3	2. $^{-}6 + {}^{+}8$ +2	3. $^{-}2 + {}^{-}7$ -9	4. $^{+}3 + {}^{-}2$ +1
5. $^{-}2 + {}^{+}5$ +3	6. $^{-}7 + {}^{+}2$ -5	7. $^{+}6 + {}^{-}2$ +4	8. $0 + {}^{-}7$ -7
9. $^{+}6 + {}^{-}6$ 0	10. $^{+}2 + {}^{+}7$ +9	11. $^{-}7 + {}^{+}3$ -4	12. $^{-}3 + {}^{-}5$ -8
13. $^{+}4 + {}^{-}3$ +1	14. $^{-}5 + {}^{-}8$ -13	15. $^{+}3 + {}^{+}6$ +9	16. $^{-}3 + {}^{+}3$ 0
17. $^{-}9 + {}^{+}1$ -8	18. $^{+}1 + {}^{-}4$ -3	19. $^{-}8 + {}^{+}9$ +1	20. $^{-}2 + 0$ -2

Practice

Solve. Show your work.

1. At the store Joanna picked up a bag with 16 bagels selling for $1.36. Jesse found another with 12 bagels selling for $1.00. Which had the better price? 12 bagels

2. When all the ballots were counted, 7815 voted for the winner, 5044 for the other candidate, and 680 blank votes were cast. How many ballots were there in all? 13 539

3. Dr. Jurgen bought 40 rolls of film for the office at $2.85 per roll. What was the amount of this purchase? $114

4. $47.15 was collected. $13.50 was given to one charity and $22 to another. How much was left? $11.65

5. The children picked berries. Phil filled $\frac{1}{3}$ of a box. Pat picked $\frac{1}{2}$ of a box. Eddy picked $1\frac{1}{4}$ boxes. How many boxes is this in all? $2\frac{1}{12}$

6. Luanne went fishing 25 times last summer. She caught fish on 17 of the fishing trips. What percent of her trips were successful? 68 %

Finding Differences Between Temperatures

For each of these, tell how many degrees the temperature changed.
Then tell whether the temperature rose or fell.

1. $^{+}10°C$ to $^{-}2°C$ 12°C, fell	2. $^{-}4°C$ to $^{+}7°C$ 11°C, rose	3. $^{-}9°C$ to $^{-}4°C$ 5°C, rose

4. $^{+}11°C$ to $^{+}9°C$ 2°C, fell
5. $^{+}18°C$ to $^{-}5°C$ 23°C, fell
6. $0°C$ to $^{-}15°C$ 15°C, fell
7. $^{-}9°C$ to $^{+}15°C$ 24°C, rose
8. $^{+}22°C$ to $0°C$ 22°C, fell
9. $^{-}2°C$ to $^{-}5°C$ 3°C, fell
10. $^{+}8°C$ to $^{+}13°C$ 5°C, rose
11. $0°C$ to $^{+}8°C$ 8°C, rose
12. $^{+}7°C$ to $^{-}9°C$ 16°C, fell
13. $^{-}10°C$ to $0°C$ 10°C, rose
14. $^{-}6°C$ to $^{+}5°C$ 11°C, rose
15. $^{-}12°C$ to $^{-}1°C$ 11°C, rose

Practice

Solve. Show your work.

1. A pig with a mass of about 100 kg needs about 3.6 kg per day of feed. About 10% of this diet should be fats or oils. How many kilograms per day of fats or oils should a 100 kg pig get? 0.36 kg

2. Fat has about 2.25 times the energy content of carbohydrates. A certain mass of carbohydrates produces 1500 kJ of energy. How many kilojoules would the same amount of fat produce? 3375 kJ

3. For every kilogram of dry feed they eat, pigs consume about 3 kg of water. A pig drinking 6.3 kg of water is probably eating about how many kilograms of dry feed? 2.1 kg

4. Lucienne is raising a pig as a school project. When she bought it, the mass of the piglet was 13.64 kg. Now, four months later, its mass is 113.5 kg. By how much has its mass increased? 99.86 kg

5. Lucienne is looking over her feed bills for the project. In September she spent $7.90, in October $13.75, and in both November and December she spent $16.40. What was her total feed bill? $54.45

6. When the pig project was finished, Lucienne had spent $104.00 buying the piglet and its food. The butcher charged her $35.00 to process it. She sold the meat for $1.88/kg. There were 73 kg. How much did she gain or lose? $1.76 loss

NAME _____

Practice

Perform the indicated operation.

1. $\begin{array}{r} 8015 \\ -\ 792 \\ \hline 7223 \end{array}$

2. $\begin{array}{r} 4.3 \\ 7.216 \\ +\ 0.84 \\ \hline 12.356 \end{array}$

3. $\begin{array}{r} 5\frac{1}{2} \\ 3\frac{2}{5} \\ +\ 4\frac{3}{10} \\ \hline 13\frac{1}{5} \end{array}$

4. $73\overline{)15\,622}$ → 214

5. $\begin{array}{r} \$283 \\ \times\ 14 \\ \hline \$3962 \end{array}$

6. $1.2\overline{)17.28}$ → 14.4

7. $\begin{array}{r} 32\,107 \\ 4\,665 \\ +\ 989 \\ \hline 37\,761 \end{array}$

8. $\begin{array}{r} \$17.05 \\ -\ 4.66 \\ \hline \$12.39 \end{array}$

9. $\begin{array}{r} 6\frac{1}{4} \\ -2\frac{1}{2} \\ \hline 3\frac{3}{4} \end{array}$

10. $\begin{array}{r} 514 \\ \times 203 \\ \hline 104\,342 \end{array}$

11. $3\frac{1}{3} \times \frac{3}{5}$ → 2

12. $\$245.41 \div 23$ → \$10.67

13. $\frac{5}{9} \div \frac{1}{3}$ → $1\frac{2}{3}$

14. 15% of 65 → 9.75

Solve. Show your work.

15. At the book fair, the third grade bought 43 books. The fourth and fifth grades each bought 60 books. The sixth grade bought 74 books. How many books were bought by the four grades in all? 237

16. The sixth grade had a giant raffle for a scholarship fund. Expenses for prizes and tickets were \$188.25. The students sold 3422 tickets for 25¢ each. How much profit was made for the scholarship fund? \$667.25

17. Another class of 42 children raised \$1134 for the fund. What was the average amount raised per child? \$27

18. What is the area of a parallelogram whose base is 4.3 cm and whose height is 3.7 cm? 15.91 cm^2

19. The Smithfields' trip covered 113 km by boat and 2405 km by car. The Bronsons travelled 780 km by air and 1640 km by train. How much farther did the Smithfields travel? 98 km

20. Marshall packaged 16 apples in each of 19 boxes and 6 apples in each of 35 trays. How many apples did he use? 514

NAME _____

Checking Up - - Computation

Perform the indicated operation. Show your work on another sheet of paper. Write your answers on this page.

1. $\begin{array}{r} 1784 \\ +\ 4513 \\ \hline 6297 \end{array}$

2. $\begin{array}{r} 2868 \\ -\ 2376 \\ \hline 492 \end{array}$

3. $\begin{array}{r} 594 \\ \times\ \ 4 \\ \hline 2376 \end{array}$

4. $6\overline{)1428}$ → 238

5. $\begin{array}{r} 814 \\ \times\ 37 \\ \hline 30118 \end{array}$

6. $28\overline{)8596}$ → 307

7. $\begin{array}{r} 8330 \\ -\ 2592 \\ \hline 5738 \end{array}$

8. $\begin{array}{r} 27.6 \\ \times\ \ 8 \\ \hline 220.8 \end{array}$

9. $\begin{array}{r} 259 \\ +\ 386 \\ \hline 645 \end{array}$

10. $\begin{array}{r} 137 \\ \times 206 \\ \hline 28222 \end{array}$

11. $7\overline{)58.8}$ → 8.4

12. $\begin{array}{r} \$13.68 \\ 6.97 \\ +\ 20.28 \\ \hline \$40.93 \end{array}$

13. $\begin{array}{r} 8.5 \\ \times 5.9 \\ \hline 50.15 \end{array}$

14. $\begin{array}{r} 3003 \\ -\ 528 \\ \hline 2475 \end{array}$

15. $42\overline{)33432}$ → 796

16. $87 \times \$7.69$ $669.03

17. $4\frac{1}{5} - 2\frac{1}{2}$ $1\frac{7}{10}$

18. $127.87 \div 1.9$ 67.3

19. $14.2 + 6.38$ 20.58

20. $\frac{3}{10} \times \frac{2}{9}$ $\frac{1}{15}$

21. $510 \div 24$ 21.25

22. $\$63.31 - \$43.64$ $19.67

23. $4 \div \frac{2}{3}$ 6

24. $1\frac{1}{3} + 3\frac{1}{6}$ $4\frac{1}{2}$

Solve. Show your work.

25. Hermie scored 15 975 on a video game. Gail scored 18 040. How many more points did Gail score? 2065

26. Mrs. Schultz bought 18 wooden boards. Each board was 1.7 m long. What was the total length of the wood she bought? 30.6 m

27. Lee has to cut a wire 58.9 cm long into pieces that are each 3.8 cm long. How many 3.8 cm pieces will he get? 15

28. Kristen spent $18.39 for meat and $25.75 for other groceries. She paid for them with a fifty-dollar bill. How much change did she receive? $5.86

NAME _____

Checking Up -- Decimals, Fractions, and Ratios

Use >, <, or = to complete each statement.

1. 4.16 ≥ 4.061
2. $\frac{4}{5}$ ≥ $\frac{5}{7}$
3. 2.103 < 2.3

List in order from least to greatest.

4. 10.103, 10.13, 10.013, 10.1
   10.013, 10.1, 10.103, 10.13
5. $\frac{3}{4}$, $\frac{2}{3}$, $\frac{5}{8}$, $\frac{3}{5}$
   $\frac{3}{5}$, $\frac{5}{8}$, $\frac{2}{3}$, $\frac{3}{4}$

Round to the

6. nearest hundredth. 4.072 4.07
7. nearest tenth. 1.485 1.5

Write each as a decimal.

8. $\frac{5}{8}$ 0.625
9. $\frac{12}{5}$ 2.4

Write each as a percent.

10. 0.7 70%
11. $\frac{3}{4}$ 75%

Complete.

12. 15:20 = 3: 4
13. $\frac{4}{9} = \frac{16}{36}$
14. 4:6 = 6 :9
15. $\frac{15}{18} = \frac{20}{24}$

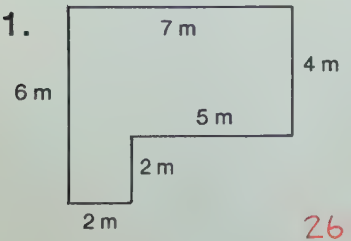
Checking Up -- Measurement

Complete.

1. 70 mm = 7 cm
2. 4.06 L = 4060 mL
3. 1.6 km = 1600 m
4. 500 g = 0.5 kg
5. 2.3 m = 230 cm
6. 4500 mL = 4500 cm^3
7. \$1.14 for 3 L = \$0.38 /L
8. 482 km in 5 h = 96.4 km/h
9. The mass of 3.5 L of water is 3500 g.
10. The mass of 3000 cm^3 of water is 3 kg.

Find the perimeter.

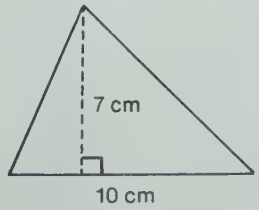
11.



26 m

Find the area.

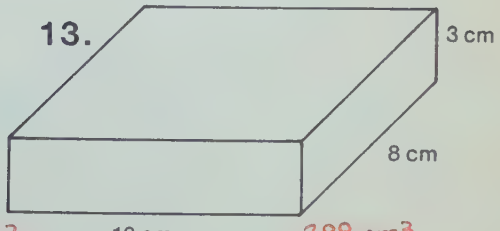
12.



35 cm^2

Find the volume.

13.

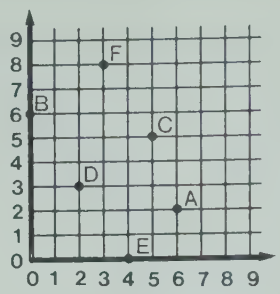


288 cm^3

NAME _____

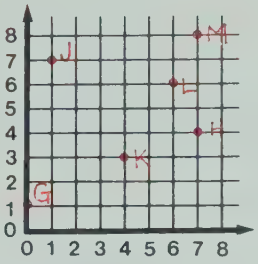
Checking Up -- Graphing and Geometry

Give the ordered pair of numbers that matches



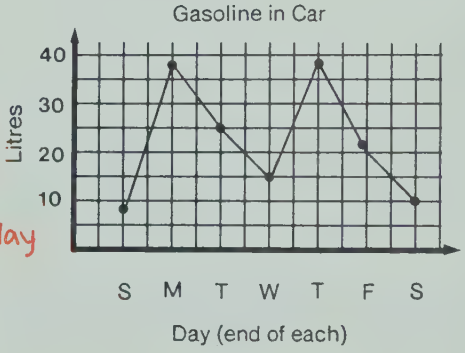
1. point A. (6, 2)
2. point B. (0, 6)
3. point C. (5, 5)
4. point D. (2, 3)
5. point E. (4, 0)
6. point F. (3, 8)

Plot each point.



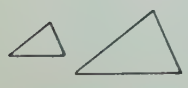
7. G(0, 1)
8. H(7, 4)
9. J(1, 7)
10. K(4, 3)
11. L(6, 6)
12. M(7, 8)

Mr. Salmon's electronic fuel gauge shows how many litres of gasoline are in the tank of his automobile. Use the graph at the right to help you answer each question.



13. When did Mr. Salmon fill the tank? Monday Thursday
14. On which day did he drive the most? Friday
15. On which day did he drive the least? Wednesday
16. On which day did he have the least gasoline left? Sunday

From the list, choose the one word or phrase that best matches each picture.

17.  similar triangles

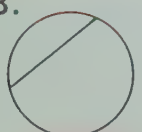
18. pyramid

19. flip

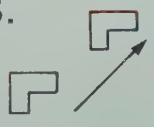
20. perpendicular lines

21. trapezoid

22. isosceles triangle

23.  chord

24. acute angle

25.  slide

acute angle	parallel lines
obtuse angle	perpendicular lines
isosceles triangle	diameter
scalene triangle	chord
congruent triangles	trapezoid
similar triangles	parallelogram
slide	pyramid
flip	cone
turn	prism

SEP 2 8 1992

QA 135-5 S79 1982 GR-6 WKBK-
TCH-ED- C-3
STARTING POINTS IN MATHEMATICS/
/REV --
M2 39584808 CURR

00004028527 2

DATE DUE SLIP

EDUC FEB 05 '93
JAN 26 RETURN
EDUC JUL 31 '93
1993 JUL 19 RETURN
RETURN NOV 19 '96
RETURN FEB 28 '01

F255

For a lesson like the one shown, have students who exhibit difficulty in understanding the material in the textbook proceed through the *diagnostic/instruction box* using the *completely-worked example* for review. Go over the example with students individually. Have them verbalize their understanding of the process involved. Then have them proceed through a solution of the *partially-worked example* while you watch and listen. Check their understanding by having them complete the *decision exercises* in the diagnostic/instruction box on their own. Use their performance on these exercises as a basis for deciding whether they have grasped the required concept or skill to continue on the remaining exercises, or whether more help is necessary such as that provided in the *Starting Points in Mathematics Reteaching Blackline Masters*.

One diagnostic/instruction box is provided with every lesson that relates to a textbook lesson. A completely-worked example is a feature in most of these boxes. When the task requires a rather "large" response, however, such as in the creation of a graph, the first exercise may be only partially complete. After discussing the work shown for such an exercise, have the students complete the exercise for a check of their understanding while you watch and listen.

For some lessons, such as those which develop concepts rather than skills, there may be no partially-worked example following the first completed example. For such lessons the student simply proceeds to the other exercises in the diagnostic/instruction box following your initial review with them of the worked example and their verbalization of the concepts involved. For these exercises, you may wish to have them justify their responses verbally as they proceed while you listen and watch.

Space for student answers is provided after or below each exercise. This positioning is usually suggested by what is shown in the worked examples.

B40021

GINN AND COMPANY
EDUCATIONAL PUBLISHERS

C95147
0-7702-0849-5